

ATTACHMENT D

EXHIBIT 2

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**IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

GOOGLE LLC,

Plaintiff,

v.

SONOS, INC.,

Defendant.

Case No. 3:20-cv-06754-WHA
Related to Case No. 3:21-cv-07559-WHA

**REBUTTAL EXPERT REPORT
REGARDING DAMAGES**

January 13, 2023

Respectfully Submitted,



W. Christopher Bakewell

includes speakers, and for the '966 patent, Mr. Malackowski considers a base that includes the Google Home app. There is clearly overlap between these two royalty bases.⁴³ Mr. Malackowski did not provide a way to unwind this double counting.

30. Mr. Malackowski did not address demand for the Google Home app, and the portion of demand that relates to the alleged infringement. Illustrating this, Mr. Malackowski did not measure the frequency that the Google Home app is even used for grouping of speakers.
31. Mr. Malackowski disregarded that the '885 and '966 patents relate to cost savings. In **Section 6**, I describe that Google is implementing a commercially acceptable, non-infringing alternative for the '885 and '966 patents, and costs are expected to total less than \$200,000, with no significant impact on demand (*see Exhibit 2.0*). At the time of the hypothetical negotiation(s), the cost of this commercially acceptable, non-infringing alternative would have been significantly lower. I understand that there is at least one other potential commercially acceptable, non-infringing alternative for the '885 and '966 patents.
32. Mr. Malackowski's "income approach" theory, which is based on the IFTTT app as his starting point, values prior art and software beyond patent rights, and at no point does Mr. Malackowski actually apportion this out.⁴⁴ IFTTT is a poor starting point, and overstates value.
33. Even hypothetically assuming Mr. Malackowski's theory regarding using IFTTT as a starting point is reasonable, which is it not, there are basic adjustments relating to demand and usage that can be made. While not "corrections," these illustrate the magnitude of his errors and reduce his estimates to no more than \$1.2 million for the '885 patent and no more than \$7.4 million for the '966 patent (*see Exhibit 4.0*). There are also a variety of measures that show adjusted royalties that are significantly lower than these amounts, as I further discuss in **Section 8**.

⁴³ While Mr. Malackowski's theory for the '885 patent applies to Google speakers, his theory for the '966 patent applies to Google Home app installations on any smartphone, tablet or laptop. Malackowski Supplemental Report, pp. 27-30. Mr. Malackowski assumed that "the Accused Instrumentalities include any and all smartphones, tablets, and computers that are installed with the Google Home app" for the '966 patent. *See* Malackowski Supplemental Report, p. 29.

⁴⁴ Interview of Dr. Schonfeld.

34. Another issue is that Mr. Malackowski has “revenue split” theories embedded in many, but not all, of his royalty calculations for both the patents-in-suit. For these, Mr. Malackowski stated that “in the context of the Asserted Patents, Sonos would act similarly to an app developer.”⁴⁵ But the hypothetical negotiation(s) involve only bare patent rights.⁴⁶ What these “splits” illustrate is that Mr. Malackowski’s theories are unrealistic, lack connection to the facts of this case, and yield results that are not specific to the patents-in-suit.⁴⁷ Mr. Malackowski provides no patent licensing or transaction evidence that uses or is otherwise supportive of Mr. Malackowski’s “split,” specifically, or his running royalty theories, in general.⁴⁸
35. I understand that the cost of implementing commercially acceptable non-infringing alternatives is less than approximately \$2.6 million for the ‘033 patent, less than \$200,000 for the ‘885 patent and less than \$200,000 for the ‘966 patent (*see Exhibit 2.0*). Mr. Malackowski and I appear to agree that these are valid measures of damages, although Mr. Malackowski has assumed that there are no commercially acceptable non-infringing alternatives.
36. Alternatively, to the extent Mr. Malackowski’s theories are considered by the trier-of-fact, adjustments can be made that reduce his estimates to no more than \$5.4 million for the ‘033 patent, no more than \$1.2 million for the ‘885 patent, and no more than \$7.4 million for the ‘966 patent (*see Exhibit 1.0*). These adjustments do not include all potentially reductions and could be greater, meaning that they are generous, yet they yield conclusions that are far lower than what Mr. Malackowski sets forth. Overall, as I will explain in more detail below, these adjustments to Mr. Malackowski’s theories further show the lack of demand for the patents-in-suit, and provide additional evidence regarding commercial acceptability of the non-infringing alternatives.

⁴⁵ Malackowski Supplemental Report, p. 120.

⁴⁶ During his August 26, 2022 deposition, Mr. Malackowski admitted that the hypothetical negotiation would involve a one-way bare patent license and that the parties would not negotiate for Sonos to provide any services to Google. *See* deposition of James Malackowski, August 26, 2022, pp. 64-65.

⁴⁷ During his August 26, 2022 deposition, Mr. Malackowski admitted that he is not aware of any real-world evidence where Google used the commission it charged on apps in the Play Store as a data point in real-world licensing negotiations. *See* deposition of James Malackowski, August 26, 2022, pp. 153-161.

⁴⁸ Mr. Malackowski admitted that Google’s patent licenses and purchase agreements were lump sum in nature. *See* deposition of James Malackowski, August 26, 2022, p. 165.

60. Mr. Malackowski stated that the “zone scene” technology enables users to provide “time-saving advantage.”⁸³ However, neither Dr. Almeroth nor Mr. Malackowski measure the claimed “time saving advantage,” or if it is important to consumers.⁸⁴
61. Mr. Malackowski did not appear to provide any weight to the fact that Sonos itself did not add what it claims is the “zone scene” functionality in its products until June 2020 although Sonos claims to have invented “zone scene” and “overlapping groups” in 2006.⁸⁵ Mr. Malackowski did not consider why Sonos did not provide the ability to save groups (or use a “zone scene”), or provide “overlapping speaker” groups, until June 2020. I understand that this is over a decade after Sonos claims to have invented “zone scene” or “overlapping groups.”⁸⁶
62. Mr. Malackowski stated the ‘885 and ‘966 patents enable a user to “listen to synchronous audio on different speaker groups in their home at different times where each speaker group includes an overlapping Accused Google Player,” and that this “flexibility was not possible with ‘conventional multi-zone audio system[s].’”⁸⁷ Mr. Malackowski did not measure how often users use this “flexibility,” or the extent to which the ‘885 and ‘966 patents drive consumer demand, nor did he consider the data produced by Google regarding the actual usage of speaker grouping—a functionality far broader than the technology claimed by the ‘885 and 966 patents.⁸⁸

assumes that the patents-in-suit drive the entire value of the accused functionalities (which includes the apps and end products). I understand that if “the product has other valuable features that also contribute to driving consumer demand—patented or unpatented—then the damages for patent infringement must be apportioned to reflect only the value of the patented feature.” See *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 904 F.3d 965, 978 (Fed. Cir. 2018). See also, *AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1338-40 (Fed. Cir. 2015); *VirnetX, Inc. v. Cisco Sys. Inc.*, 767 F.3d 1308, 1326 (Fed. Cir. 2014). See also, *Uniloc USA, Inc. v. Microsoft Corporation*, 632 F.3d 1292, 1320 (Fed. Cir. Jan. 4, 2011); *Cornell University v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279, 286 (N.D.N.Y. 2009) (Rader, J.); *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1336 (Fed. Cir. 2009).

⁸³ Malackowski Supplemental Report, p. 111.

⁸⁴ Interview of Dr. Schonfeld.

⁸⁵ Interview of Dr. Schonfeld; Malackowski Supplemental Report, p. 30; Almeroth Report, p. 329; ‘885 patent; ‘966 patent.

⁸⁶ Interview of Dr. Schonfeld; Malackowski Supplemental Report, p. 30; Almeroth Report, p. 329; ‘885 patent; ‘966 patent.

⁸⁷ Malackowski Supplemental Report, p. 112.

⁸⁸ Interview of Dr. Schonfeld.

- Claim 1 also requires speaker 1 to stay in a “standalone mode” even after being added to the two speaker groups. In other words, I understand that speaker 1 will continue to act as an individual speaker (*i.e.*, either playing music or not playing music) despite being grouped together with speakers 2 and 3.

86. Instead of studying demand or usage for the claimed invention, Mr. Malackowski broadly assumed that each and every sale of the accused smart speakers, smart displays and other smart devices is infringing, whether or not the grouping functionality (much less “zone scene”) was used in an allegedly infringing manner. I discuss this in detail in **Section 5.3**.

87. A summary of the accused products is provided in the following table:¹⁶⁴

**Summary Of The Accused Products
‘885 Patent**

Chromecast	Home Max
Chromecast Ultra	Nest Audio
Chromecast with Google TV	Nest Hub (f/k/a Home Hub)
Home Mini	Nest Hub Max
Nest Mini	Nest Wifi Point
Google Home	

88. Following is a brief description of the accused products under the ‘885 patent:

- *Chromecast*: In July 2013, Google launched the Chromecast, a HDMI dongle which enables users to play or cast media by plugging into “any HDMI-equipped television or monitor” or connecting to the home wireless network.¹⁶⁵ The Chromecast turns the “phone or computer into a remote, allowing you to queue up and play videos, control volume, or even turn on the TV; from there, you can use other apps without interrupting playback.”¹⁶⁶
- *Chromecast Ultra*: In November 2016, Google released the Chromecast Ultra, which is an updated version of the Chromecast supporting both High Dynamic Range (“HDR”) and 4K content.¹⁶⁷ The Chromecast Ultra is considered as

¹⁶⁴ Almeroth Opening Report, pp. 6-7; Malackowski Supplemental Report, pp. 27-28. Dr. Almeroth did not list Chromecast Audio as an accused product while Mr. Malackowski incorrectly listed Chromecast Audio as an accused product.

¹⁶⁵ “Google’s Chromecast A Brilliant Play For The Living Room – Especially With \$35 Price Tag,” *Forbes*, July 24, 2013 (accessed: <https://www.forbes.com/sites/jasonevangelho/2013/07/24/googles-chromecast-a-brilliant-play-for-the-living-room-especially-with-35-price-tag/?sh=787bbb846f13>).

¹⁶⁶ “Google Reveals Chromecast: Video Streaming To Your TV From Any Device For \$35,” *The Verge*, July 24, 2013 (accessed: <https://www.theverge.com/2013/7/24/4552204/google-reveals-chromecast-tv-streaming>).

¹⁶⁷ “Google Announces Chromecast Ultra, A 4K Version Of Its Streaming Device,” *The Verge*, October 4, 2016 (accessed: <https://www.theverge.com/2016/10/4/13098438/google-chromecast-ultra-4k-youtube-streaming-device-announced-price>). Chromecast Ultra was noted to handle both the HDR10 and Dolby Visions versions

Google's fastest Chromecast "loading videos 1.8 times faster than the standard Chromecast, thanks to improved Wi-Fi connectivity."¹⁶⁸

In September 2020, Google discontinued the Chromecast Ultra when it introduced the new Chromecast with Google TV.¹⁶⁹ Chromecast with Google TV offered a "richer, full-featured streaming experience much more akin to a Roku, Amazon Fire TV, or Apple TV" and a more user-friendly version for users "who are used to using a remote control and an easily navigable interface."¹⁷⁰

89. Sonos has also accused Google's smart speakers, smart displays and other smart devices of infringing the '885 patent. Some of the features and functionalities in these accused products are listed below:

- *Google Home*: In October 2016, Google launched Google Home as an entry-level smart home speaker and voice-based digital assistant that was seen as "Google's answer to the Amazon Echo."¹⁷¹ As with the Echo, Google Home was "designed to allow users to control music streaming, connect appliances, and basic information like calendar appointments and weather."¹⁷² Google Assistant enabled a user to "use the trigger phrase 'OK Google' and tell Home which song you want to listen to" and "use voice to control volume or switch tracks."¹⁷³

of HDR. "Chromecast Ultra supports H.264 1080p, H.264 720 x 480, MPEG-4, VP8 video and AAC-LC, AC3, eAC3 (Dolby Digital Plus), FLAC, MP3, PCM/WAV, Vorbis audio files." See "Chromecast Ultra Review," Tech Radar, December 2, 2021 (accessed: <https://www.techradar.com/reviews/chromecast-ultra/2>). Google's casting standard "doesn't require the control device (usually your phone) to supply the stream. Instead, you are simply using the phone to tell Spotify (for example) to play on your Chromecast Audio device directly - a bit like a remote controller."

¹⁶⁸ "Google Announces Chromecast Ultra, A 4K Version Of Its Streaming Device," The Verge, October 4, 2016 (accessed: <https://www.theverge.com/2016/10/4/13098438/google-chromecast-ultra-4k-youtube-streaming-device-announced-price>). Google also has an "Ethernet port on the power adapter for users whose Wi-Fi connections may not be able to handle 4K streams."

¹⁶⁹ "The \$30 Chromecast Won't Be Discontinued, But Chromecast Ultra Will Only Be Sold w/Stadia," 9 to 5 Google, September 30, 2020 (accessed: <https://9to5google.com/2020/09/30/chromecast-ultra-stadia-future-discontinued/>).

¹⁷⁰ "Google Chromecast (2020) Review: Reinvented — And Now With A Remote," Tech Radar, December 2, 2021 (accessed: <https://www.theverge.com/21495609/google-chromecast-2020-review-streaming-remote-control>); "Chromecast With Google TV Review," Tech Radar, February 2, 2022 (accessed: <https://www.techradar.com/reviews/chromecast-with-google-tv>). Chromecast with Google TV had a "massive selection of apps," could stream in either 1080p or 4K HDR with "support for the HDR10+ and Dolby Vision format," and "live TV" available for YouTube subscribers. The remote control included a Google Assistant button which performed voice searches, controlled smart home gadgets, updated the weather and populated "the main screen of the Chromecast's UI with relevant and recommended content."

¹⁷¹ "Google Unveils Its Newest Major Product: The Google Home Speaker," Business Insider, October 4, 2016 (accessed: <https://www.businessinsider.com/google-home-announced-price-release-date-2016-10>); GOOG-SONOSNDCA-00056673-721.

¹⁷² "Google Unveils Its Newest Major Product: The Google Home Speaker," Business Insider, October 4, 2016 (accessed: <https://www.businessinsider.com/google-home-announced-price-release-date-2016-10>); GOOG-SONOSNDCA-00056673-721.

¹⁷³ "Google Unveils Its Newest Major Product: The Google Home Speaker," Business Insider, October 4, 2016

In April 2017, Google Home added the “multi-user support” feature, based on neural network technology, whereby it can identify “different voices of people you live with” and “tailor answers for each person and know which account to pull data from based on their voice.”¹⁷⁴

- *Google Home Mini*: In October 2017, Google launched a smaller version of Google Home called the Google Home Mini.¹⁷⁵ The Home Mini was a “voice-controlled speaker that can be used to play music, control smart home gadgets, answer trivia questions, add things to a shopping list, create calendar appointments, or play video on a Chromecast-enabled screen.”¹⁷⁶ The Home Mini was discontinued in December 2021.¹⁷⁷
- *Google Nest Mini*: Released in October 2019, the Nest Mini “features an assortment of improvements, like better sound, faster processing, and much more, to deliver a better experience for the user than its predecessor.”¹⁷⁸
- *Google Home Max*: In December 2017, Google launched Google Home Max, which some characterized as being targeted at the “premium” category of consumers.¹⁷⁹ Some of the “key features” in Google Home Max included “design,” “epic sound,” and “intelligent equalizer.”¹⁸⁰ Using the machine-learning

(accessed: <https://www.businessinsider.com/google-home-announced-price-release-date-2016-10>). In addition to basic music streaming, Google added an “extra bit of smarts to music control. If you don't remember the specific name of a song, you can use a general query to help Google identify what you're talking about. To do so, and provide answers to other queries, Google Home used Google's Knowledge Graph, which was designed to give the “direct answer to what you want.”

¹⁷⁴ “Google Home Now Supports Multiple Users, But Still Can't Separate Work And Personal Accounts,” The Verge, April 20, 2017 (accessed: <https://www.theverge.com/circuitbreaker/2017/4/20/15364960/google-home-speaker-multi-user-new-feature>).

¹⁷⁵ “Google Home Mini Review: Chasing Dots,” The Verge, October 11, 2017 (accessed: <https://www.theverge.com/2017/10/11/16453788/google-home-mini-smart-speaker-review>).

¹⁷⁶ “Google Home Mini Review: Chasing Dots,” The Verge, October 11, 2017 (accessed: <https://www.theverge.com/2017/10/11/16453788/google-home-mini-smart-speaker-review>). The Home Mini could additionally be used to “place phone calls from the Home speakers,” as well as to locate a phone that was misplaced in the owner's home.” The Home Mini had a “good sounding speaker” and “far-reaching microphones.”

¹⁷⁷ “Google Finally Stops Selling The Home Mini After Four Years,” 9 to 5 Google, December 20, 2021 (accessed: <https://9to5google.com/2021/12/20/google-home-mini-out-of-stock/>).

¹⁷⁸ “Google Nest Mini (2nd Gen) Review: Even Faster, Even Smarter,” Digital Trends, July 7, 2021 (accessed: <https://www.digitaltrends.com/home/nest-mini-review-2/>). The Nest Mini was “top-notch” when it came to “voice detection.”

¹⁷⁹ GOOG-SONOSNDCA-00056673-721; “Google Home Max Review,” Tech Radar, December 4, 2019 (accessed: <https://www.techradar.com/reviews/google-home-max>); The \$399 Home Max purchase came with a 12-month subscription to YouTube Music “Google Home Max Officially Discontinued After Going Out Of Stock,” 9 to 5 Google, January 26, 2021 (accessed: <https://9to5google.com/2021/01/26/google-home-max-discontinued/>).

¹⁸⁰ GOOG-SONOSNDCA-00056673-721 at 681.

powered “Smart Sound,” the Home Max “adjusts the equalizer to the current environment.”¹⁸¹ Google Home Max was discontinued in December 2020.¹⁸²

- *Google Home Hub*: Launched in October 2018, Google Home Hub is a 7-inch, voice-controlled display.¹⁸³ One new feature of the Google Home Hub is Live Albums, where photos of people chosen by the owner can be shown on the touchscreen display via artificial intelligence used by Google.¹⁸⁴
- *Nest Hub and Nest Hub Max*: In May 2019, Google changed the name of Google Home Hub to Nest Hub.¹⁸⁵ The Nest Hub is a “smart display that combines the functionality of a voice-controlled smart speaker...with a touchscreen you can use to look at pictures, watch videos, browse recipes, control your smart home and more.”¹⁸⁶

In September 2019, the Nest Hub Max, which is a bigger version of the Nest Hub, was released.¹⁸⁷ The Nest Hub Max performed a variety of functions, including streaming Netflix, making Zoom calls, controlling thermostats and lights, serving as a live album of photographs, providing security camera footage, playing music, etc.¹⁸⁸

- *Nest Audio and Nest Wi-Fi*: In May 2020, Google Home was discontinued and replaced with Nest Audio.¹⁸⁹ The Nest Audio, geared towards music enthusiasts,

¹⁸¹ “Google Home Max Officially Discontinued After Going Out Of Stock,” 9 to 5 Google, January 26, 2021 (accessed: <https://9to5google.com/2021/01/26/google-home-max-discontinued/>).

¹⁸² “Google Discontinues The Google Home Max,” The Verge, December 14, 2020 (accessed: <https://www.theverge.com/2020/12/14/22175243/google-home-max-discontinued-smart-speaker-support>).

¹⁸³ “Google Wants Its New Home Hub to Live in Every Room of Your House,” The Wired, October 9, 2018 (accessed: <https://www.wired.com/story/google-home-hub-smart-display/>).

¹⁸⁴ “Google Wants Its New Home Hub to Live in Every Room of Your House,” The Wired, October 9, 2018 (accessed: <https://www.wired.com/story/google-home-hub-smart-display/>).

¹⁸⁵ “Google Nest Hub Review: Google’s Nest Hub Smart Display Is Still Great,” CNET, October 29, 2020 (accessed: <https://www.cnet.com/reviews/google-nest-home-hub-with-google-assistant-the-best-smart-display-review/>).

¹⁸⁶ “Google Nest Hub Review: Google’s Nest Hub Smart Display Is Still Great,” CNET, October 29, 2020 (accessed: <https://www.cnet.com/reviews/google-nest-home-hub-with-google-assistant-the-best-smart-display-review/>). The Nest Hub also serves as an “entertainment hub,” where YouTube videos can be watched without a subscription.

¹⁸⁷ “Google Confirmed Nest Hub Max Has A Release Date: Sept. 9,” CNET, July 24, 2019 (accessed: <https://www.cnet.com/home/smart-home/google-confirmed-nest-hub-max-has-a-release-date-sept-9/>).

¹⁸⁸ “Nest Hub Max,” Google Store (accessed: https://store.google.com/product/google_nest_hub_max?hl=en-US). Besides voice control, the Nest Hub Max could be controlled using gestures. *See* “Google Confirmed Nest Hub Max Has A Release Date: Sept. 9,” CNET, July 24, 2019 (accessed: <https://www.cnet.com/home/smart-home/google-confirmed-nest-hub-max-has-a-release-date-sept-9/>).

¹⁸⁹ “Google Home No More,” Voicebot.ai, May 27, 2020 (accessed: <https://voicebot.ai/2020/05/27/google-home-no-more/>); “Nest Audio: Google’s Newest Smart Speaker Is Replacing the Original Google Home,” CNET, September 30, 2020 (accessed: <https://www.cnet.com/home/smart-home/nest-audio-google-newest-smart-speaker-replacing-original-google-home/>). The Nest Audio *was* “75% louder with a 50% stronger bass than the original Google Home.”

used Google's "Media EQ and Ambient IQ technology to adjust sound."¹⁹⁰ One "standout feature" in the Nest Audio was the ability to pair two units in stereo for left and right channel separation."¹⁹¹

In November 2019, Google launched Nest Wifi, a whole-home Wi-Fi system which replaced the traditional router.¹⁹²

90. As the foregoing illustrates, there are many other technologies and features in the accused products unrelated to the '885 patent.

'966 Patent: Overview Of The Accused Functionality (Directed To "Computing Devices")

91. Mr. Malackowski assumed that "the Accused Instrumentalities include any and all smartphones, tablets, and computers that are installed with the Google Home app."¹⁹³
92. Mr. Malackowski stated that "the Google Home app can be installed on user devices running different operating systems, such as Android (which runs on Android devices, such as Google's Pixel devices), iOS (which runs on Apple's devices), and chromeOS (which runs on Chromebooks)."¹⁹⁴ According to Mr. Malackowski, applicable "user devices include popular smartphone devices, such as the Samsung Galaxy, the Apple iPhone, and the Google Pixel, as well as popular tablets and laptops, such as the Apple iPad and Google Chromebook."¹⁹⁵

¹⁹⁰ "Nest Audio Review: Google's New Smart Speaker Is An Improvement In Every Way," CNET, October 5, 2020 (accessed: <https://www.cnet.com/home/smart-home/nest-audio-review-google-new-smart-speaker-is-an-improvement-in-every-way/>). The Media EQ technology tuned audio based on the type of sound playing like podcasts, music, audiobooks or assistant voices, and the type of music playing to adjust for sound profile differences in classical music versus hard rock. The Ambient IQ technology adjusted the volume to account for any ambient background noise at home.

¹⁹¹ "Nest Audio Review: Google's New Smart Speaker Is An Improvement In Every Way," CNET, October 5, 2020 (accessed: <https://www.cnet.com/home/smart-home/nest-audio-review-google-new-smart-speaker-is-an-improvement-in-every-way/>). The Nest Audio featured "Google's latest ML [machine learning] chip...for faster voice assistance response and smart audio tuning features."

¹⁹² "Meet Google Nest Wifi" (accessed: <https://support.google.com/googlenest/answer/9583920?hl=en>). The Nest Wifi includes a speaker with Google Assistant to play music, manage Wi-Fi network, control connected devices, and more using just voice.

¹⁹³ Malackowski Supplemental Report, p. 29.

¹⁹⁴ Malackowski Supplemental Report, p. 29.

¹⁹⁵ Malackowski Supplemental Report, p. 29. Dr. Almeroth stated that the accused products for the '966 patent include "Google 'Pixel' computing devices" and "third-party computing devices...that are installed with at least the Google Home app for Android, ChromeOS, or iOS." Almeroth Report, pp. 8-9.

93. I understand that the ‘966 patent is directed to the handset, running a mobile application, that is used to group speakers in a specific way, as discussed in **Section 2.1**.¹⁹⁶ Instead of studying demand or usage for the claimed invention, Mr. Malackowski broadly assumed that each and every install of Google Home app on the accused smartphones, tablets and laptops is infringing, whether or not any grouping functionality—let alone the specific type of “zone scene” grouping required by the ‘966 patent—was used.¹⁹⁷
94. A summary of the accused products for the ‘966 patent is provided in the following table:¹⁹⁸

**Summary Of The Accused Products
‘966 Patent**

**Accused
Google App**
Google Home

**Accused
Pixel Devices**

Any smartphones, tablets or laptops (including Android, iOS and ChromeOS devices) that are either pre-installed or "provisioned" with the Google Home app. This includes Pixel, Pixel XL, Pixel 2, Pixel 2 XL, Pixel 3, Pixel 3 XL, Pixel 3a, Pixel 3a XL, Pixel 4, Pixel 4 XL, Pixel 4a, Pixel 4a (5G), Pixel 5, Pixel 5a (5G), Pixel 6, Pixel 6 Pro, Pixel 6a, Pixel 7, Pixel 7 Pro, and Android, iOS and ChromeOS tablets and laptops.

95. Mr. Malackowski applied a royalty rate of \$0.82 per unit for the ‘966 patent to installations of Google Home app on smartphones, laptops and tablets, while he applied a royalty rate of \$0.87 per unit for the ‘885 patent to unit sales of Google’s accused products (*i.e.*, speakers, smart displays and smart dongles).¹⁹⁹ Mr. Malackowski double counted royalties for the ‘885 and ‘966 patents. I further discuss this double-counting issue in **Section 4.1**.
96. Mr. Malackowski’s royalty rates for the ‘885 and ‘966 patents are each slightly different from one another. This difference is not due to any sort of apportionment to the patented technology; instead, it is only due to Mr. Malackowski’s assumptions in his “lifetime value” calculation.²⁰⁰

¹⁹⁶ Interview of Dr. Schonfeld.

¹⁹⁷ Malackowski Supplemental Report, pp. 28-29.

¹⁹⁸ Almeroth Report, pp. 6-7; Malackowski Supplemental Report, pp. 29-30. Dr. Almeroth did not list Chromecast Audio as an accused product while Mr. Malackowski incorrectly listed Chromecast Audio as an accused product.

¹⁹⁹ Malackowski Supplemental Report, pp. 8-9.

²⁰⁰ Malackowski Supplemental Report, p. 89.

accused for the '033 and '966 patents.²⁰⁶ The '033 patent does not relate to either of these “markets.”

102. Mr. Malackowski's treatment of competition within the general “markets” he identifies is incomplete and often inaccurate. Mr. Malackowski does not discuss that there are multiple segments, and he does not appear to credit that Sonos and Google operate in different segments within the more general “markets” that he mentions. Instead, Mr. Malackowski often generally characterizes Sonos and Google as direct competitors within what he sees a very broad and homogenous marketplace.
103. This section, which is provided for background, is organized at a high level as follows. First, I discuss the competitive environments for mobile computing devices (*i.e.*, smartphones, laptops and tablets) and streaming music; this relates to the accused products for the '033 and '966 patents. Next, I discuss the competitive environment for smart speakers and smart home systems; this relates to the accused products for the '885 and '966 patents.
104. Sonos alleges that Google infringes the '033 patent and the '966 patent in ways that relate to smartphones, tablets and laptops.²⁰⁷ The accused products for the '033 patent include Android and non-Android smartphones, tablets and laptops that are either pre-installed or “provisioned” with YouTube, YouTube Music, YouTube TV, YouTube Kids and Google Play Music apps.²⁰⁸ The accused products for the '966 patent include Android and non-Android smartphones, tablets and laptops that are either pre-installed or “provisioned” with Google Home app.²⁰⁹
105. Sonos and Google are not competitors in the smartphone, tablet and laptop space. Mr. Malackowski admits that Sonos's products do not practice the '033 and '966 patents, stating that Sonos does “not specifically offer a computer device that can serve as a controller for the Sonos system, such as a smartphone.”²¹⁰ It is unclear why Mr. Malackowski does not describe that Sonos does not have a competitive counterpart to the accused Android and non-Android

²⁰⁶ Schmidt Report, pp. 19-21; Malackowski Supplemental Report, pp. 22-26, 29-30.

²⁰⁷ Schmidt Report, pp. 19-21; Malackowski Supplemental Report, pp. 22-26, 29-30.

²⁰⁸ Schmidt Report, pp. 19-21; Malackowski Supplemental Report, pp. 22-26, 29-30.

²⁰⁹ Almeroth Report, pp. 45-48; Malackowski Supplemental Report, pp. 22-26, 29-30.

²¹⁰ Malackowski Supplemental Report, pp. 30-32.

smartphones, tablets and laptops; this is incongruent with Mr. Malackowski's across-the-board opinion that Sonos and Google are competitors in a general sense.²¹¹ Competition between the two companies is more nuanced and limited than is described in Mr. Malackowski's report.

106. Similarly, Mr. Malackowski does not describe a market or competition specific to streaming music. Mr. Malackowski does not discuss that Sonos did not have a presence in the streaming music service space at the time of the hypothetical negotiation for the '033 patent.²¹²
107. Generally, competition in the smartphone, laptop and tablet space is intense;²¹³ technologies within smartphones, tablets and laptops are constantly evolving, as are consumers' purchasing habits and expectations.²¹⁴ Consumers select smartphones based on various and changing characteristics, including price, size, screen resolution, storage, camera quality, and interface familiarity.²¹⁵ The smartphone, laptop and tablet industry faces many challenges, one of which is relatively modest profit margins.²¹⁶ These challenges relate to the complexity and changing

²¹¹ Malackowski Supplemental Report, pp. 30-32.

²¹² Malackowski Supplemental Report, pp. 30-32.

²¹³ The introduction of the iPhone in mid-2007 is seen by many as an initial step in the U.S. smartphone industry. "Apple Computer: iPhone Is A Show Stopper; Raising Estimates And PT," Deutsche Bank, January 9, 2007, pp. 1-2. Currently, the most popular smartphone brands in the U.S. are Apple and Samsung. "Smartphones in the U.S.," Statista, 2021, p. 17.

²¹⁴ "The Impact of Technology Consumer Behavior," The Keenfolks (accessed: <https://thekeenfolks.com/the-impact-of-technology-on-consumer-behaviour/>).

²¹⁵ Competing In Smartphones Demands More Than Great Hardware -- You Need A Strong Ecosystem," Forbes, May 9, 2018 (accessed: <https://www.forbes.com/sites/forrester/2018/05/09/competing-in-smartphones-demands-more-than-great-hardware-you-need-a-strong-ecosystem/#a9010769bd6d>).

²¹⁶ "Weak Smartphone Margins Are Motivating Samsung To Raise Memory Prices," Seeking Alpha (accessed: <https://seekingalpha.com/article/4210176-weak-smartphone-margins-motivating-samsung-raise-memory-prices>); "Samsung, Apple Agonise Over Smartphone Profit Margins," Gadgets 360, June 2, 2014 (accessed: <https://gadgets.ndtv.com/mobiles/features/samsung-apple-agonise-over-smartphone-profit-margins-506145>); "In Smartphone Mass-Market, Samsung, Apple Have Margins On Their Minds," Reuters, April 4, 2018 (accessed: <https://www.reuters.com/article/us-samsung-elec-smartphones-analysis/in-smartphone-mass-market-samsung-apple-have-margins-on-their-minds-idUSBREA3806J20140409>); "China's Huawei 2017 Profit Jump Helped By Cost Controls, Smartphone Sales," Reuters, March 29, 2018 (accessed: <https://www.reuters.com/article/us-huawei-results/chinas-huawei-2017-profit-jump-helped-by-cost-controls-smartphone-sales-idUSKBN1H609Q>); "As Android Phone Profits Dwindle, Are We Heading Toward Future Of Only iPhone and Chinese Phones?" Forbes, March 8, 2016 (accessed: <https://www.forbes.com/sites/bensin/2016/03/08/as-android-phone-profits-dwindle-are-we-heading-toward-future-of-only-iphone-and-chinese-phones/#41541b9643ca>); Frue, Kiesha, "SWOT Analysis of Dell Technologies: Is the Declining Laptop Market a Major Threat?" Pestle Analysis, November 20, 2018 (accessed: <https://pestleanalysis.com/swot-analysis-of-dell/>); Green, Timothy, "HP's PC Profits Fall Back to Earth," The Motley Fool, November 24, 2022 (accessed <https://www.fool.com/investing/2022/11/24/hps-pc-profits-fall-back-to-earth/>); Blodget, Henry, "Sorry, Apple Fans, Amazon Is Sucking The Profit Out Of iPads – iPhones Next?" Business Insider, September 7, 2012 (accessed: <https://www.businessinsider.com/apple-tablet-profits->

nature of the products.²¹⁷ Profit margins are also compressed by competition from lower-cost providers,²¹⁸ especially for Android phones.²¹⁹

108. Widespread use of smartphones has changed how consumers interact with digital media. Over the last decade or so, consumers increasingly expected easy access to large amounts of digital media.²²⁰ In 2008, Spotify was launched, offering consumers unlimited access to millions of songs.²²¹ As of March 2021, Spotify held the largest share of streaming music, accounting for 32% of worldwide music streaming subscribers.²²² Apple Music followed, accounting for a 16% share at that time, Amazon and Tencent Music each held 13%, and Google accounted for 8%.²²³
109. Sonos does not offer a competing product for a substantial portion of Google's accused Pixel product sales associated with mobile computing devices (*i.e.*, smartphones, tablets and laptops).²²⁴

2012-9?r=MX&IR=T); Kingsley-Hughes, Adrian, "How the Kindle Fire and the Nexus 7 harmed the tablet market," ZDNET, August 1, 2012 (accessed: <https://www.zdnet.com/article/how-the-kindle-fire-and-the-nexus-7-harmed-the-tablet-market/>).

²¹⁷ "Weak Smartphone Margins Are Motivating Samsung To Raise Memory Prices," Seeking Alpha (accessed: <https://seekingalpha.com/article/4210176-weak-smartphone-margins-motivating-samsung-raise-memory-prices>); "Samsung, Apple Agonise Over Smartphone Profit Margins," Gadgets 360, June 2, 2014 (accessed: <https://gadgets.ndtv.com/mobiles/opinion/apple-usd-1-trillion-market-valuation-profit-margins-analysis-1894722>); "Competing In Smartphones Demands More Than Great Hardware -- You Need A Strong Ecosystem," Forbes, May 9, 2018 (accessed: <https://www.forbes.com/sites/forrester/2018/05/09/competing-in-smartphones-demands-more-than-great-hardware-you-need-a-strong-ecosystem/#a9010769bd6d>).

²¹⁸ "Samsung Posts Record Quarterly Profit Despite Smartphone Slump," CNET, October 20, 2018 (accessed: <https://www.cnet.com/news/samsung-posts-record-quarterly-profit-despite-smartphone-slump/>); "As Android Phone Profits Dwindle, Are We Heading Toward Future Of Only iPhone and Chinese Phones?" Forbes, March 8, 2016 (accessed: <https://www.forbes.com/sites/bensin/2016/03/08/as-android-phone-profits-dwindle-are-we-heading-toward-future-of-only-iphone-and-chinese-phones/#3f1c338b643c>).

²¹⁹ "As Android Phone Profits Dwindle, Are We Heading Toward Future Of Only iPhone and Chinese Phones?" Forbes, March 8, 2016 (accessed: <https://www.forbes.com/sites/bensin/2016/03/08/as-android-phone-profits-dwindle-are-we-heading-toward-future-of-only-iphone-and-chinese-phones/#3f1c338b643c>).

²²⁰ "A Stream of Music, Not Revenue," The New York Times, December 12, 2013 (accessed: <https://www.nytimes.com/2013/12/13/business/media/a-stream-of-music-not-revenue.html>).

²²¹ Spotify was founded in 2006 and officially launched in 2008. See "Digital Music," Statista, 2021, p. 21. Spotify also offered "the first legal alternative to illegal downloads" during a time when music piracy was becoming increasingly popular. See "Digital Music," Statista, 2021, p. 21.

²²² "Share Of Music Streaming Subscribers Worldwide In The 1st Quarter of 2021, By Company," Statista and MIDia Research, July 2021.

²²³ "Share Of Music Streaming Subscribers Worldwide In The 1st Quarter of 2021, By Company," Statista and MIDia Research, July 2021.

²²⁴ Sales of Pixel smartphones, tablets and laptops accounted for over 70% of Google's accused product revenues during the damages period (*i.e.*, September 15, 2020 through September 30, 2022). See GOOGLE-SONOSNDCA-00117797.

110. The accused products for the '885 patent include home audio players, smart speakers, streaming devices and smart home systems.²²⁵ The accused products for the '966 patent includes Google Home app installs on computing devices (*e.g.*, smartphones).²²⁶ Mr. Malackowski claimed that Sonos and Google compete in a general home audio player “market,” which in Mr. Malackowski’s view includes high-end “home theater” products.²²⁷ Mr. Malackowski also offers general statements, such as that Sonos and Google “actively compete in the smart speaker market.”²²⁸
111. Mr. Malackowski does not appear to consider that Sonos and Google focus differently on market segments and customers. Sonos targets audiophiles and those that appreciate high-end music quality, and a “home premium” segment.²²⁹ Google’s smart speakers are generally targeted at more mainstream audiences, including price conscious customers.²³⁰
112. Many Sonos’s speakers such as the Sonos One SL, Sonos Five, and Sonos Roam SL, as well as the now discontinued Sonos Play:5 speaker are not smart speakers or voice-enabled (*see Exhibit 14.1*). In contrast, Google’s accused speakers are voice-enabled (*see Exhibit 14.2*). Also, several Sonos speakers are soundbars and subwoofers (such as Arc, Beam and Sub) used in a home theater setting; Google does not offer products such as sound bars or subwoofers that are intended for use in a home theater setting (*see Exhibit 14.2*).²³¹

²²⁵ Almeroth Report, pp. 45-48; Malackowski Supplemental Report, pp. 28-29.

²²⁶ Malackowski Supplemental Report, p. 29; Almeroth Report, pp. 8-10.

²²⁷ Malackowski Supplemental Report, p. 19.

²²⁸ Malackowski Supplemental Report, pp. 19-20.

²²⁹ Interview of Mr. Chan; SONOS-SVG2-00053537-574 at 545; SONOS-SVG2-00055769 at 806; “Sonos One Review: The Best Smart Speaker For Audiophiles,” *The Guardian*, February 15, 2018 (accessed: www.theguardian.com/technology/2018/feb/15/sonos-one-review-best-smart-speaker-audiophiles-amazon-alexa); “How Smart-Speaker Maker Sonos Plans to Take on Apple, Google and Amazon,” *Variety.com*, June 20, 2018 (accessed: https://variety.com/2018/biz/features/sonos-apple-google-amazon-1202850159/?sub_action=logged_in); “Sonos CEO On Tech Competition: We’re The Story Of Software Eating Audio,” *Yahoo Finance*, March 10, 2021 (<https://www.yahoo.com/video/sonos-ceo-tech-competition-story-175816392.html>); Deposition of Chris Chan, November 29, 2022, pp. 102-103, 120.

²³⁰ Interview of Mr. Chan; Deposition of Chris Chan, November 29, 2022, pp. 119-121.

²³¹ Further illustrating these differences, I have observed that Sonos’s products are sold in different sections of Best Buy stores than Google’s.

113. Sonos and Google smart speakers are sold at different price points. For example, the Sonos Roam is priced at \$179, and is Sonos's least expensive offering.²³² Google's most expensive Nest Audio speaker is currently priced at \$99.²³³ Beginning in December 2017, Google offered a product called the "Google Home Max."²³⁴ The Google Home Max was discontinued in December 2020 (this was only about one month after the November 2020 hypothetical negotiation date for the '885 patent.)²³⁵ And Google was planning to sunset the Google Home Max in December of 2018, which is approximately two years before the hypothetical negotiation date for the '885 patent, and approximately one year before the hypothetical negotiation for the '966 patent.²³⁶
114. The Sonos Roam is marketed for mobility attributes, including a rechargeable battery, ability to use either indoors or outdoors, and its weather-resistant design.²³⁷ The Sonos Roam was designed to "compete with portable Bluetooth speakers that people so often carry everywhere without a second thought."²³⁸ In contrast, Google does not offer portable speakers. Google's accused speakers, such as Nest Audio, are primarily designed to operate indoors.²³⁹
115. Mr. Malackowski also disregarded evidence that most of Google's accused products lack a competitive counterpart among Sonos's products. For example, Sonos does not manufacture or sell smartphones, smart displays, smart dongles, smart mesh WiFi systems, or video platforms (*see* **Exhibit 14.0** and **Exhibit 14.1**). Illustrating this, Google smart displays, such as Home Hub, Nest Hub and Nest Hub Max, include a touch screen enabling them to serve as

²³² "Sonos Roam Review: Portable Potential," The Verge, April 6, 2021 (accessed:

<https://www.theverge.com/22368487/sonos-roam-bluetooth-speaker-review-features>).

²³³ "Can I Use The Google Nest Audio Outside," Smart Home Starter website, January 26, 2022 (accessed:

<https://smarthomestarter.com/can-i-use-the-google-nest-audio-outside/>).

²³⁴ "Google Discontinues The Google Home Max," The Verge, December 14, 2020 (accessed:

<https://www.theverge.com/2020/12/14/22175243/google-home-max-discontinued-smart-speaker-support>).

²³⁵ "Google Discontinues The Google Home Max," The Verge, December 14, 2020 (accessed:

<https://www.theverge.com/2020/12/14/22175243/google-home-max-discontinued-smart-speaker-support>).

²³⁶ GOOG-SONOSNDCA-00116430 (discussing agreement to "EOP/EOS" [End of Play/End of Service] Biggie).

²³⁷ Move, Sonos website (accessed: <https://www.sonos.com/en-us/shop/move>).

²³⁸ "Sonos Roam Review: A Good Speaker In A Small Package," CNET, April 6, 2021 (accessed:

<https://www.cnet.com/tech/home-entertainment/sonos-roam-review/>); "Sonos Roam Review: Portable Potential," The Verge, April 6, 2021 (accessed: <https://www.theverge.com/22368487/sonos-roam-bluetooth-speaker-review-features>).

²³⁹ "Can I Use The Google Nest Audio Outside," Smart Home Starter website, January 26, 2022 (accessed: <https://smarthomestarter.com/can-i-use-the-google-nest-audio-outside/>).

digital photo displays, control smart home devices, video players, and even track sleep.²⁴⁰ Sonos's products do not have a display screen (*see* **Exhibit 14.0** and **Exhibit 14.1**).

116. Smart displays not only enhance the features of a smart speaker, but they also add “new features that drive more engagement.”²⁴¹ They act as bedside clocks, digital photo frames, allow users to view security cameras and TV shows, in addition to acting as smart speakers.²⁴² Amazon, Google, and other companies offer smart display products that are growing in popularity with consumers.²⁴³
117. Google offers streaming devices, such as Chromecast with Google TV, which enable customers to stream content from multiple streaming services, including YouTube, Netflix, Hulu, and Google Play, to a television, and includes a voice remote allowing for control of the television either by navigating with buttons or by pressing the Google Assistant button.²⁴⁴ Sonos's products do not have video streaming functionality. Google also offers connectivity devices, such as Nest Wifi Point, which enable a customer to extend their Wi-Fi network at home; Sonos has no such product (*see* **Exhibit 14.3**).²⁴⁵
118. Mr. Malackowski admitted that there is some desire for technologies such as “virtual assistant technology,” including Google Assistant and others.²⁴⁶ Mr. Malackowski disregarded that, at

²⁴⁰ “The Center Of Your Helpful Home,” Google Store website (accessed: https://store.google.com/category/nest_hubs_displays?hl=en-US); “How To Use A Google Nest Hub As a Digital Picture Frame,” The Verge, April 26, 2022 (accessed: <https://www.theverge.com/23041642/google-nest-hub-digital-picture-frame-how-to>);

²⁴¹ “Smart Displays Are Stealing The Show From Smart Speakers,” ZDNet, January 26, 2021 (accessed: <https://www.zdnet.com/home-and-office/smart-home/smart-displays-are-stealing-the-show-from-smart-speakers/>).

²⁴² “Smart Displays Are Stealing The Show From Smart Speakers,” ZDNet, January 26, 2021 (accessed: <https://www.zdnet.com/home-and-office/smart-home/smart-displays-are-stealing-the-show-from-smart-speakers/>).

²⁴³ “Smart Displays Are Stealing The Show From Smart Speakers,” ZDNet, January 26, 2021 (accessed: <https://www.zdnet.com/home-and-office/smart-home/smart-displays-are-stealing-the-show-from-smart-speakers/>).

²⁴⁴ “About Chromecast with Google TV,” Google Support website (accessed: https://support.google.com/fiber/answer/12244429?hl=en#:~:text=What%20is%20Chromecast%20with%20Google,control%20some%20smart%20home%20devices;)); “Chromecast With Google TV,” Google Store website (accessed: https://store.google.com/us/product/chromecast_google_tv?hl=en-US).

²⁴⁵ Nest WiFi, Google store (accessed: https://store.google.com/product/nest_wifi_router?hl=en-US).

²⁴⁶ Malackowski Supplemental Report, pp. 19-20.

can be expressed as either a percentage of net sales, or a per-unit amount that is applied to the number of sales of products incorporating the licensed technology. Hybrids of the two forms are also possibilities, an example being a running royalty capped at a certain amount.

158. As I will discuss, the evidence in this case shows that the applicable form of a reasonable applicable for each of the patents-in-suit is a one-time, lump-sum payment. There are many facts in this case that support the conclusion that a royalty should be in the form of a lump-sum payment, including availability of non-infringing alternatives, the lack of significant incremental benefits from the asserted claims of the patents-in-suit, and Google's agreements and practices regarding patent rights.
159. Licenses with royalties structured in the form of a lump sum have the benefit of not requiring any auditing of books and records. Lump-sum royalties are driven by several considerations, including:³¹⁵
 - *Operating freedom.* This means that the licensee seeks the freedom to run its business—and change it—without concern of whether or not it used a technology under which it has taken a license. The nature of an industry characterized by a large number of patents can require participants to obtain licenses from multiple patentees in order to commercialize new technologies.
 - *Reduced potential for ambiguity or misunderstandings.* Disagreements regarding the amount of payments made under a running-royalty license can lead to a dispute. Examples include new management wanting to “change the deal” and disputes over the licensor's obligation to administrate the patent through filing and maintenance. Disputes may arise over whether or not future inventions made by the licensee are included under the license. Lump-sum licenses reduce the possibility for dispute over these issues.
 - *Reduced administrative burden.* Lump-sum licenses avoid accounting issues associated with making annual, semi-annual or quarterly payments.
 - *Reduced need to develop complex and possibly cumbersome reports.* A running-royalty payment requires financial information to be organized, analyzed, and shared between the licensee and licensor.
 - *No need to disclose confidential information.* Most running-royalty licenses contain rights of the licensor to audit the licensee's books and records to ensure

³¹⁵ Richard Razgaitis, *Early Stage Technologies: Valuation & Pricing*, John Wiley: 1999, pp. 226-229; *Lucent Techs. Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1325 (Fed. Cir. 2009).

compliance. Lump-sum licenses avoid the need to verify this information, which some licensees view as a possible intrusion on confidentiality.

- *Certainty for budgeting.* The licensor has less at risk because there is no uncertainty of payment. The licensee can budget for its expenses, and has less at risk in terms of future payments. This also can be particularly attractive for a licensor that is in financial difficulty.³¹⁶

160. Another practical consideration that affects real-world licensing relates to the competitive environment and technological obsolescence. If there are commercially acceptable, non-infringing alternatives, or the patented technology becomes obsolete over time, then it is less valuable, and compensation could be reasonably met via a one-time, lump-sum payment relating to the economic impact of the patent right.³¹⁷ Mr. Malackowski agrees with this in concept, and admits the potential for commercially acceptable non-infringing alternatives affecting royalties.

161. In his discussion of G-P Factor 7, Mr. Malackowski stated that “long-term, non-exclusive licenses tend to have lower rates so as not to incentivize the licensee to design around the patented technology, implement an alternative technology or otherwise discontinue sales of a licensed product. Conversely, short-term, non-exclusive licenses tend to have higher rates.”³¹⁸ Mr. Malackowski and I appear to agree, however Mr. Malackowski misses an important point, as I describe below.

162. Here, Mr. Malackowski admitted the potential of commercially acceptable non-infringing alternatives affecting the royalties. But if this is so, a better way to measure the economic impact of commercially acceptable non-infringing alternatives is to evaluate the alternatives themselves, and account for the impact directly in the royalty calculus. If there are commercially acceptable non-infringing alternatives, or if the technology could be removed, the costs are estimable and should be accounted for. Similarly, if a technology is likely to

³¹⁶ Shapiro, C. “Navigating the Patent Thicket,” *Innovation Policy and the Economy I*, eds. Jaffe, A. B, Lerner, J. and Sterns, S. p. 119.

³¹⁷ Also, with additional technologies being added, a royalty that might seem reasonable at one point in time could be very high at a later point in time due to the new technologies that have been added. To the extent that a technology might make some contribution at one point in time, it is often reduced over time due to crowding out. In this way, a running royalty does not reflect the changing, declining, or “crowded out” incremental contribution of the technology that is being licensed.

³¹⁸ Malackowski Supplemental Report, p. 106.

become obsolete or inconsequential, the timeframe of its economic relevance could be estimated, and the economic impact of technological obsolescence measured.

163. I understand that as a matter of practice, Google seeks lump-sum form of royalties over running royalties.³¹⁹ This is consistent with the above discussion.

4 INTRODUCTION TO REBUTTAL ANALYSIS

4.1 Recap Of Mr. Malackowski's Theories, Including Basic Errors Contained Therein

164. In this section, I provide an overview of Mr. Malackowski's various damages theories. As I will explain, each of Mr. Malackowski's theories unreliable for various basic reasons.
165. I discuss additional conceptual errors in **Section 4.2** and **Section 4.3**. Later, I provide a more detailed analysis of Mr. Malackowski's theories. For instance, in **Section 5**, **Section 6** and **Section 7**, I address in more detail each of the three approaches to intellectual property valuation that Mr. Malackowski claimed to use (*i.e.*, the income approach, cost approach and the market approach).³²⁰ Along the way, I describe alternative, and better, measures of reasonable royalties.

'033 Patent: Summary Of Mr. Malackowski's Theories

166. Mr. Malackowski set forth three royalty theories for the '033 patent, as summarized in the following table:³²¹

³¹⁹ Interview of Mr. Kowalski.

³²⁰ The purpose of this section of my expert report is not to provide a comprehensive assessment of everything that Mr. Malackowski did incorrectly; instead, it is to provide an overview of the various issues that cause Mr. Malackowski's work to be unreliable and overestimate damages. Furthermore, I note that if I do not comment on any one area of Mr. Malackowski's report, or any particular statement made by Mr. Malackowski, it should not be taken to mean that I agree with it.

³²¹ Malackowski Supplemental Report, pp. 8-9, 76-79.

7.2 Mr. Malackowski Mistreated Sonos Licensing Negotiations With Google

499. Mr. Malackowski stated that the licensing negotiations between Sonos and Google are not comparable to the hypothetical license(s).⁸⁹² In this regard, Mr. Malackowski and I appear to agree.⁸⁹³ Yet, despite stating that the licensing negotiations between Sonos and Google are not comparable to the hypothetical negotiation(s) and are not probative of a reasonable royalty,⁸⁹⁴ Mr. Malackowski includes a significant discussion of these licensing negotiations, and it is unclear if he believes they are irrelevant. Thus, in response to Mr. Malackowski, I briefly discuss the licensing negotiations between Sonos and Google in the following paragraphs.

500. One reason that these licensing negotiations are not comparable since they involved a cross-license to each other's patent portfolio. Also, these negotiations related to proposed business relationships between the parties, and involved proposals that were not finalized or executed.⁸⁹⁵

501. I understand that, beginning 2016, Sonos and Google participated in licensing negotiations regarding a license to each other's patent portfolios.⁸⁹⁶ Sonos produced several negotiation documents with Google, including an [REDACTED] "non-binding" Confidential Patent License and Business Engagement Agreement ("the [REDACTED] Sonos – Google Term Sheet").⁸⁹⁷ The [REDACTED] Sonos – Google Term Sheet was a proposal; it was neither finalized nor executed.⁸⁹⁸

502. The [REDACTED] provided a [REDACTED]
[REDACTED]⁸⁹⁹ Exhibit A to the term sheet [REDACTED]

⁸⁹² Malackowski Supplemental Report, pp. 49-52.

⁸⁹³ Mr. Malackowski makes other observations about the form of Sonos licenses that he says are otherwise irrelevant. Mr. Malackowski disregarded that, if anything, these negotiations support a reasonable royalty in the form of a lump sum. GOOG-SONOSNDCA-00116067-071; SONOS-SVG2-00041807-860; SONOS-SVG2-00041610-642; SONOS-SVG2-00041769-806; SONOS-SVG2-00041643-686; SONOS-SVG2-00041571-609; SONOS-SVG2-00041568-570.

⁸⁹⁴ Malackowski Supplemental Report, pp. 50-53.

⁸⁹⁵ Malackowski Supplemental Report, pp. 50-53.

⁸⁹⁶ SONOS-SVG2-00041610-642 at 612-613.

⁸⁹⁷ GOOG-SONOSNDCA-00116067-071 at 067.

[REDACTED] GOOG-SONOSNDCA-00116067-071 at 70. Again, this amount is [REDACTED] and is not relevant to the hypothetical negotiation(s). However, to the extent that it is considered, this amount discredits Mr. Malackowski's running royalty theory, and provides evidence of the lump-sum form of royalty in this case.

⁸⁹⁸ GOOG-SONOSNDCA-00116067-071.

⁸⁹⁹ GOOG-SONOSNDCA-00116067-071.

900 [REDACTED]

901 Again, these sort of collaborative terms are not part of the bare patent license(s) that are the hypothetical license(s), and is another reason why these terms are not probative of a reasonable royalty in this matter.

503. Mr. Malackowski claimed that “the lump-sum payment referenced in this Term Sheet is drastically low.”⁹⁰² Mr. Malackowski says that this is so because [REDACTED]

903 Mr. Malackowski does not explain what he means by “drastically low.” There is no basis or evidence supporting Mr. Malackowski’s statements, particularly that they are “drastically low,” since there is no analysis of the royalty payment or comparison of technologies performed by Mr. Malackowski.

504. The Sonos – Google Term Sheet stated that [REDACTED]

[REDACTED] with respect to the [REDACTED]⁹⁰⁴ This is broader and different than a hypothetical license which involves a one-way bare patent license to just

⁹⁰⁰ GOOG-SONOSNDCA-00116067-071 at 71.

⁹⁰¹ GOOG-SONOSNDCA-00116067-071 at 69.

⁹⁰² Malackowski Supplemental Report, p. 52.

⁹⁰³ Malackowski Supplemental Report, p. 52.

⁹⁰⁴ GOOG-SONOSNDCA-00116067-071 at 67-69. The term [REDACTED] was defined as [REDACTED]

the two patents-in-suit. Mr. Malackowski makes no adjustments for this, and despite this, still makes a claim of being “drastically low.”⁹⁰⁵

505. Mr. Malackowski also discussed the terms of a [REDACTED]

[REDACTED]

[REDACTED]⁹⁰⁷ These are not specific to the patents-in-suit, and Mr. Malackowski provided no evidence that the royalties in these models specifically relate to the patents-in-suit or their economics.

506. According to Mr. Malackowski, “just a few days after signing the Term Sheet, Google announced the release of two new speakers—the Google Mini and the Google Home Max—which solidified Google’s entrance into the smart speaker market and as a direct competitor with Sonos.”⁹⁰⁸ According to Mr. Malackowski, “therefore, the lump-sum payment that is referenced in this Term Sheet is drastically low as it assumes that Google would work with Sonos to implement its technology into Sonos speakers and that Google would remain a small player in the market with relatively few products available.”⁹⁰⁹ Mr. Malackowski also stated that “for these reasons, the Term Sheet is not comparable to the hypothetical negotiation...”⁹¹⁰

507. Although I agree with Mr. Malackowski that the term sheet generally lacks relevance to the hypothetical negotiation(s), it is because it is not specific to the patents-in-suit or specific patent rights that are identified to be comparable. Mr. Malackowski provided no basis for his opinion that the “lump-sum payment is drastically low,” and was a function of Google intending to “remain a small player in the market.”⁹¹¹ If he truly believes that agreement is not relevant,

⁹⁰⁵ Malackowski Supplemental Report, p. 52. [REDACTED]

[REDACTED] GOOG-SONOSNDCA-00116067-071 at 67-68. Again, this is broader and different than a hypothetical license which involves a one-way bare patent license to just the two patents-in-suit.

⁹⁰⁶ Malackowski Supplemental Report, pp. 52-53.

⁹⁰⁷ SONOS-SVG2-00041807-860 at 813-814.

⁹⁰⁸ Malackowski Supplemental Report, p. 51.

⁹⁰⁹ Malackowski Supplemental Report, p. 51.

⁹¹⁰ Malackowski Supplemental Report, p. 51.

⁹¹¹ Malackowski Supplemental Report, p. 51.

and without providing economic comparison to comparable technologies the hypothetical license(s), if any, then Mr. Malackowski has no basis to draw conclusions about the rates contained therein.

508. These licensing negotiations ultimately did not result in an agreement between the parties. Generally, the Sonos-Google negotiations do not provide data points that are comparable to the hypothetical license(s). These negotiations are for proposed business relationships that contain other terms and conditions, and it does not appear that rights specific to the patents-in-suit can be isolated.

7.3 Mr. Malackowski's Treatment Of Google Patent Licenses Is Flawed

509. Mr. Malackowski discussed Google patent licenses in some detail, but he dismisses them claiming they are “not economically comparable.”⁹¹² In this regard, Mr. Malackowski and I appear to agree.⁹¹³ Despite stating that these licenses are not comparable, Mr. Malackowski included a lengthy discussion of these agreements, so it is unclear if he intends to try to use them to support his opinions.⁹¹⁴ Thus, I respond to some of the flawed observations that Mr. Malackowski made regarding them.⁹¹⁵

510. I note that on January 5, 2023, Google and [REDACTED] entered into a Patent License Agreement involving a lump-sum payment.⁹¹⁶ I understand that the technology in this agreement is comparable to the '033 patent.⁹¹⁷ This agreement is very recent, and my analysis

⁹¹² Malackowski Supplemental Report, pp. 53-58.

⁹¹³ According to Mr. Malackowski, these agreements were not between competitors and granted worldwide rights while the hypothetical license would be between competitors and limited to the United States. Malackowski Supplemental Report, pp. 53-58.

⁹¹⁴ Malackowski Supplemental Report, pp. 53-58. I discuss this below when I address each of these licenses.

⁹¹⁵ Generally, Mr. Malackowski disregarded the form of these patent licenses, despite observing in Sonos's agreements where there are running royalties, even though he says those agreements are not comparable to the hypothetical license(s). The Google license agreements are not per unit or based on revenues, and are instead lump-sum in nature (see Exhibit 8.0). GOOG-SONOSNDCA-00055142-152; GOOG-SONOSNDCA-00069849-851; GOOG-SONOSNDCA-00055153-164; GOOG-SONOSNDCA-00069847-848; GOOG-SONOSNDCA-00055209-220; GOOG-SONOSNDCA-00069846; GOOG-SONOSNDCA-00055066-077; GOOG-SONOSNDCA-00069845.

⁹¹⁶ GOOG-SONOSNDCA-00118768.

⁹¹⁷ Bhattacharjee Rebuttal Report, January 13, 2023, Section XVII.

the '966 patent to gain significant market share from Google, or "leveraged" it as an "operating company" to generate significant incremental revenues.⁹⁵⁸

530. Mr. Malackowski claimed that "Google and Sonos did view themselves as competitors in the smart speaker market, regardless of whether Sonos practices the '615 patent."⁹⁵⁹ It is unclear why Mr. Malackowski discussed the '615 patent here; it is not in the present case.⁹⁶⁰ In any event, as I have now described above at length, Mr. Malackowski's "market" analysis and his analysis of competition is incomplete and often errant.

Mr. Malackowski Mistreated The 2017 [REDACTED] – Google Agreement

531. In January 2017, [REDACTED] and Google entered into a Patent License Agreement (the "2017 [REDACTED] – Google Agreement").⁹⁶¹ As part of its membership in AST, Google contributed the lump-sum amount in a "bid" towards AST's purchase of the Licensed Patents from [REDACTED].⁹⁶² [REDACTED] granted Google a license to the Licensed Patents.⁹⁶³ As I discussed earlier, the economic circumstances here are different than the hypothetical license.

⁹⁵⁸ Malackowski Supplemental Report, p. 30.

⁹⁵⁹ Malackowski Supplemental Report, p. 55.

⁹⁶⁰ In August 2022, the Court granted Google's motion for summary judgment finding non-infringement and invalidity of claim 13 of the '615 patent. See Order Granting Motion For Partial Summary Judgment As To '033 Patent, August 2, 2022.

⁹⁶¹ GOOG-SONOSNDCA-00055209-220; GOOG-SONOSNDCA-00069846. GOOG-SONOSNDCA-00055209-220, at 215; GOOG-SONOSNDCA-00069846. [REDACTED] acknowledged that its acquisition of the Licensed Patents was funded, in part, by Google, and that the partial funding would be deemed to include the license fee accepted as full consideration by [REDACTED] for the license granted under this agreement. See GOOG-SONOSNDCA-00055209-220, at 215. According to Dr. Schonfeld, the licensed patent in this agreement, U.S. Patent No. 7,885,340 ("340 patent"), is technically comparable to the '885 and '966 patents. Interview of Dr. Schonfeld.

⁹⁶² Google agreed to pay [REDACTED] a one-time, lump-sum payment of \$13,000. GOOG-SONOSNDCA-00069845; "Acquired Portfolios," AST website (accessed: <https://www.ast.com/acquired-portfolios/>). The term "Licensed Patents" was defined as "the patent applications and patents set forth in Schedule A, together with any and all reissues, results of reexamination, extensions, divisions, continuations and continuations in part of such patents and patent applications, and any foreign counterparts of any of the foregoing, in each case to the extent [REDACTED] has an ownership interest or has otherwise acquired a right to grant a license thereunder[.]" See GOOG-SONOSNDCA-00055066-077, at 066. Schedule A listed U.S. Patent Nos. 9,699,262 ("Integrated viewing of local and remote applications in various multiplatform environments") and 8,463,912 ("Remote displays in mobile communication networks"); U.S. Patent Application No. 60206543 ("Remote displays in mobile networks") and 60277001 ("Virtual Palmtop Platform"); and two foreign patents/applications. See GOOG-SONOSNDCA-00055066-077, at 076.

⁹⁶³ GOOG-SONOSNDCA-00055209-220, at 215.

532. Here, too, Mr. Malackowski discussed this agreement in some detail despite stating that it is “not economically comparable” to the hypothetical license.⁹⁶⁴ In fact, Mr. Malackowski stated that this agreement is “fundamentally different than the economics at play at the hypothetical negotiation between Sonos and Google where infringement is assumed.”⁹⁶⁵ Thus, only in response to Mr. Malackowski, I briefly discuss the terms of this agreement below.⁹⁶⁶

533. [REDACTED] granted Google a non-exclusive, non-transferable, non-sublicensable, perpetual, irrevocable, fully paid-up, and worldwide license under the “Licensed Patents.”⁹⁶⁷ The Licensed Patents included an issued U.S. patent, U.S. Publication No. 09300139, foreign counterparts, foreign counterparts, reissues, continuations, and continuations in part.⁹⁶⁸ In terms of foreign counterparts and continuations, this is broader than the hypothetical license to the ‘885 and ‘966 patents, all else equal.

534. [REDACTED] also released and covenanted not to sue Google.⁹⁶⁹ The term of the agreement was from the effective date until the expiration of the last to expire of the Licensed Patents.⁹⁷⁰ These considerations are also broader than the hypothetical license, all else equal.

535. Mr. Malackowski stated that the “Google/[REDACTED] License granted worldwide rights, while the license resulting from the hypothetical negotiation would be limited to the United States.”⁹⁷¹ Mr. Malackowski observed that this agreement is broader than the hypothetical

⁹⁶⁴ Malackowski Supplemental Report, p. 57.

⁹⁶⁵ Malackowski Supplemental Report, p. 56.

⁹⁶⁶ Like with the [REDACTED] agreement, according to Mr. Malackowski, AST is a “nonprofit group that buys patents that its member companies could be sued for infringing” and offers its patents at a “take-it-or-leave it” fixed price. Malackowski Supplemental Report, p. 56.

⁹⁶⁷ GOOG-SONOSNDCA-00055209-220, at 210; Malackowski Supplemental Report, p. 56. The term “Licensed Patents” was defined as “the patent applications and patents set forth in Schedule A, together with any and all reissues, results of reexamination, extensions, divisions, continuations and continuations in part of such patents and patent applications, and any foreign counterparts of any of the foregoing, in each case to the extent [REDACTED] has an ownership interest or has otherwise acquired a right to grant a license thereunder[.]” See GOOG-SONOSNDCA-00055209-220, at 209. Schedule A listed U.S. Patent No. 7,885,340 (“System and method for generating multiple synchronized encoded representations of media data”) and U.S. Patent Application No. 09300139. See GOOG-SONOSNDCA-00055209-220, at 220; U.S. Patent No. 7,885,340 B2.


⁹⁶⁸ GOOG-SONOSNDCA-00055209-220, at 220.



⁹⁶⁹ GOOG-SONOSNDCA-00055209-220, at 213-214.

⁹⁷⁰ GOOG-SONOSNDCA-00055209-220, at 215.

⁹⁷¹ Malackowski Supplemental Report, p. 56.

license, yet Mr. Malackowski made no adjustment for this when he makes observations about the royalty amount paid.

536. Mr. Malackowski stated that “the lump sum royalty payment in the Google/ License is not indicative of the royalty form Sonos would be willing to accept for a license...”⁹⁷² Mr. Malackowski disregards Google’s perspective and his opinion of a running royalty is discredited by the evidence which supports a lump-sum form of royalty (see **Exhibit 8.0**). Like a lump-sum license, this agreement involved one-time payments which provide the right to use the patented technology over their statutory lives.

537. Similar to his discussion of the 2014  – Google Agreement, Mr. Malackowski stated that “Google and  were not competitors, yet the license resulting from the hypothetical negotiation would be between two competitors in the speaker market...”⁹⁷³ As I stated above, Mr. Malackowski identified no evidence that a significant number of customers shifted from Sonos to Google (or were prevented from going to Sonos) due to either of the patents-in-suit.

538. Mr. Malackowski elsewhere admitted that Sonos does not practice the ‘033 patent and does not have competitive counterparts to Google’s Pixel smartphones.⁹⁷⁴ Similarly, Sonos does not have a counterpart to Google’s streaming music service at the time of the hypothetical negotiation for the ‘033 patent.⁹⁷⁵ As I described at length above, Mr. Malackowski has not shown that Sonos used the ‘885 or ‘966 patents to gain a significant competitive advantage, or “leveraged” them as an “operating company” to generate significant incremental revenues.⁹⁷⁶

⁹⁷² Malackowski Supplemental Report, p. 55.

⁹⁷³ Malackowski Supplemental Report, pp. 56-57.

⁹⁷⁴ Malackowski Supplemental Report, p. 30.

⁹⁷⁵ Malackowski Supplemental Report, p. 30-32.

⁹⁷⁶ Malackowski Supplemental Report, p. 56-57

here in support of the existence of a commercial relationship between Google and Sonos. And Mr. Malackowski admitted that Sonos does not practice the '033 patent and does not have competitive counterparts to Google's Pixel smartphones.⁹⁸⁹

545. Similarly, Sonos does not have a counterpart to Google's streaming music service at the time of the hypothetical negotiation for the '033 patent.⁹⁹⁰ And as I explained above Mr. Malackowski has not shown that Sonos used the '885 patent or the '966 patent to gain competitive advantage, or "leveraged" it as an "operating company" to generate significant incremental revenues.

7.4 Mr. Malackowski's Rationale For Dismissing Google Patent Purchase Agreements Is Unsound

546. Mr. Malackowski dismissed all of Google's patent purchase agreements, claiming that a patent purchase is "not economically comparable to the license that would result from the hypothetical negotiation in this case, nor is it indicative of the appropriate reasonable royalty rate that would be agreed to by the parties in the hypothetical negotiation."⁹⁹¹ Mr. Malackowski also dismissed them because Google received ordinary course items such as title documents.⁹⁹² However, I understand that the applicable standard for considering comparable transactions, as G-P Factor 2 describes, involves amounts paid by the licensee for use of other patents, and is not limited to only licenses.⁹⁹³ Like a lump-sum license, these agreements involve one-time payments which provide the right to use the patented technology over their statutory lives. I also do not agree with Mr. Malackowski's apparent opinion that patent purchases are always not economically comparable to patent licenses, as I will explain below.⁹⁹⁴ Mr. Malackowski also disregarded that Google's patent purchase agreements support a lump-sum form of royalty, and discredits Mr. Malackowski's running royalty theory (*see Exhibit 8.1*).

⁹⁸⁹ Malackowski Supplemental Report, p. 30.

⁹⁹⁰ Malackowski Supplemental Report, pp. 30-32.

⁹⁹¹ Malackowski Supplemental Report, pp. 58-65.

⁹⁹² Malackowski Supplemental Report, pp. 61-66.

⁹⁹³ G-P Factor 2 reads: "The rates paid by the licensee for the use of other patents comparable to the patent in suit." *Georgia Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *aff'd as modified*, 446 F.2d 295 (2d Cir. 1971).

⁹⁹⁴ Malackowski Supplemental Report, p. 60.

Mr. Malackowski And The *Invention Investment Fund I Patent Acquisitions*

547. In July 2003, [REDACTED] entered into a Limited Partnership Agreement with limited partners or entities that entered into Subscription Agreements.⁹⁹⁵ Effective December 31, 2003, Invention Investment Fund I (“IIF”) and Google entered into a partnership and subscription agreement, whereby Google had the right to receive licenses to certain patents.⁹⁹⁶ That same year, IIF and Google entered into a Patent License Agreement based on Google’s membership in IV (the “2003 IIF – Google Agreement”).⁹⁹⁷ Mr. Malackowski stated that this and related agreements are “not economically comparable to the license that would result from the hypothetical negotiation.”⁹⁹⁸
548. Mr. Malackowski stated that the “general structure by which the patents were acquired and then licensed to subscribers of an IP portfolio is fundamentally different than a bare patent license between competitors.”⁹⁹⁹ As Mr. Malackowski noted, IIF is run by Intellectual Ventures, which “manages a portfolio” and “grants companies rights to patents in diverse technical categories acquired from a variety of sources.”¹⁰⁰⁰
549. Mr. Malackowski stated that these agreements are not comparable to the hypothetical license(s) due to the nature of IIF.¹⁰⁰¹ For purposes of comparison to Mr. Malackowski’s analysis, I will also set these agreements aside.

⁹⁹⁵ GOOG-SONOSNDCA-00055078-141 at 082.

⁹⁹⁶ GOOG-SONOSNDCA-00054990-998, at 990; GOOG-SONOSNDCA-00055078-141; GOOG-SONOSNDCA-00055014-031.

⁹⁹⁷ GOOG-SONOSNDCA-00054990-998. Google produced two notices from IIF relating to the acquisition of patents. GOOG-SONOSNDCA-00054982-985; GOOG-SONOSNDCA-00054986-989. In February 2008, IIF acquired a portfolio of four U.S. patents from [REDACTED] (i.e., IP Group 00601 – Haltek) for a purchase price of \$5 million (“the [REDACTED] Transaction”). GOOG-SONOSNDCA-00054982-985. The total cost of ownership of these patents (including maintenance fees and acquisition expenses) was estimated to be approximately \$5.1 million. GOOG-SONOSNDCA-00054982-985. In September 2008, IIF acquired a portfolio of two U.S. patents and two U.S. patent applications from [REDACTED] (i.e., IP Group 01045 – [REDACTED]) for a purchase price of \$410,000 (“the [REDACTED] Transaction”). GOOG-SONOSNDCA-00054986-989. The total cost of ownership of these patents (including maintenance fees and acquisition expenses) totaled \$599,063. GOOG-SONOSNDCA-00054986-989.

⁹⁹⁸ Malackowski Supplemental Report, pp. 58-61.

⁹⁹⁹ Malackowski Supplemental Report, pp. 59-60.

¹⁰⁰⁰ Malackowski Supplemental Report, pp. 59-60.

¹⁰⁰¹ Malackowski Supplemental Report, p. 60.

Mr. Malackowski Mistreated The 2011 Outland Research – Google Agreement

550. Effective July 29, 2011, Google and Outland Research LLC (“Outland Research”) entered into a Patent Purchase Agreement (the “2011 Outland Research – Google Agreement”).¹⁰⁰² Google agreed to pay Outland Research a one-time, lump-sum amount of \$2.25 million.¹⁰⁰³
551. Mr. Malackowski claimed that this agreement is not comparable to the hypothetical license since it is a purchase agreement.¹⁰⁰⁴ As I explained above, Mr. Malackowski’s dismissal of a patent purchase, merely because it is a purchase and not a non-exclusive license, is not sufficiently supported.
552. Outland Research agreed to sell, assign, transfer, and convey to Google all right, title, and interest under 12 U.S. patents and four U.S. patent applications, and all related domestic and foreign patents including continuations, extensions, re-examinations, reissues, and renewals issued.¹⁰⁰⁵ Outland Research also assigned and transferred Google rights to collect damages for any past, current, and future infringement of the licensed patents.¹⁰⁰⁶
553. The 2011 Outland Research – Google Agreement involved ownership rights to patents. This does not mean that the agreement is not comparable to a non-exclusive license. All else being equal, a patent purchase conveys much more value than a non-exclusive license for several reasons. The purchaser not only gains the freedom to operate, but controls an option to

¹⁰⁰² GOOG-SONOSNDCA-00054999-5013.

¹⁰⁰³ GOOG-SONOSNDCA-00054999-5013, at 5001.

¹⁰⁰⁴ Malackowski Supplemental Report, pp. 61-62.

¹⁰⁰⁵ The term “Patents” was defined as “all (a) Listed Patents; (b) patents or patent applications (i) to which any of the Listed Patents claims priority, (ii) for which any of the Listed Patents forms a basis for priority, (iii) that were co-owned applications that incorporate by reference, or are incorporated by reference into, the Listed Patents, and/or (iv) which are subject to a terminal disclaimer with any of the Listed Patents; (c) reissues, reexaminations, extensions, continuations, continuations in part, continuing prosecution applications, requests for continuing examinations, divisions, and registrations of any item in any of the foregoing categories (a) and (b); (d) national (of any country of origin) and multinational patents, patent applications and counterparts relating to any item in any of the foregoing categories (a) through (c), including, without limitation, certificates of invention and utility models; (e) rights provided by multinational treaties or conventions for any item in any of the foregoing categories (a) through (d); and (f) any item in any of the foregoing categories (b) through (d) whether or not expressly listed as Listed Patents and whether or not claims in any of the foregoing have been rejected, withdrawn, cancelled, or the like.” See GOOG-SONOSNDCA-00054999-5013, at 4999-5000. The term “Listed Patents” was defined as “the provisional patent applications, patent applications, and patent listed on Exhibit A.” GOOG-SONOSNDCA-00054999-5013, at 5001.

¹⁰⁰⁶ GOOG-SONOSNDCA-00054999-5013, at 011.

exclude, and also to collect royalties.¹⁰⁰⁷ Holding all else equal, the 2011 Outland Research – Google Agreement is more valuable than a hypothetical, non-exclusive, bare patent license and is comparable in this way.

554. Mr. Malackowski also claimed that Google and Outland Research are not competitors, unlike the parties to the hypothetical negotiation.¹⁰⁰⁸ But as I discussed in **Section 2** and **Section 5**, Mr. Malackowski's consideration of the competitive environment is incomplete. Mr. Malackowski does not credit the fact the patents-in-suit are not used to generate significant demand, or to obtain a significant competitive advantage. Also, in the end, Google obtained the comparable patent rights for a price that is readily observed and was accepted by a third party. In this regard, the purchase agreement provides a better benchmark than the apps and other proxies utilized by Mr. Malackowski.

555. I further evaluated how the 2011 Outland Research – Google Agreement compares to the hypothetical license(s). I understand from Dr. Schonfeld that certain of the Outland Research patents are technologically comparable to the '885 and '966 patents; they included technologies related to collaborative background music and broadcast playback, music recommendations and synchronized overlays.¹⁰⁰⁹ I also understand from Dr. Schonfeld that at least the patents in the agreement (*i.e.*, U.S. Patent Nos. 7,603,414 ("the '414 patent"), 7,562,117 ("the '117 patent"), 7,542,816 ("the '816 patent") and 7,732,694 ("the '694 patent")) are more essential than the '885 and '966 patents because collaborative music experience, for example, has a wider potential impact than the particular way of implementing the overlapping speaker functionality claimed in the '885 and '966 patents.¹⁰¹⁰

556. I also understand that a subset of patents in this agreement relate to synchronization among devices.¹⁰¹¹ This includes the '414 patent, the '117 patent, the '816 patent and the '694 patent.¹⁰¹² According to Dr. Schonfeld, this subset is directed toward solving similar problems

¹⁰⁰⁷ In applicable circumstances.

¹⁰⁰⁸ Malackowski Supplemental Report, pp. 61-62.

¹⁰⁰⁹ Interview of Dr. Schonfeld.

¹⁰¹⁰ Interview of Dr. Schonfeld.

¹⁰¹¹ Interview of Dr. Schonfeld.

¹⁰¹² Interview of Dr. Schonfeld; Deposition of Dr. Schonfeld, August 31, 2022, pp. 145-147.

associated with the ability to synchronously stream data to different devices, and how to allow for a more seamless multi-device experience for listeners.¹⁰¹³

557. According to Dr. Schonfeld, the '414 and '117 patents, in particular, are technologically comparable to the '885 and '966 patents.¹⁰¹⁴ I understand that the '414 and '117 patents allow consumers to listen to music as a group, listen to music on a group of devices, and collaborate across devices to access media recommendations based on the group's preferences.¹⁰¹⁵

558. I also understand that the '816 patent is technologically comparable to the '885 and '966 patents since it is directed towards allowing users to experience music in different ways depending on their mood.¹⁰¹⁶ Similarly, the '885 and '966 patents claim to provide a whole house experience that can be tailored to various situations by grouping audio players in different ways for morning or evening routines or grouping for party music.¹⁰¹⁷

559. I also understand that the '694 patent is technologically comparable to the '885 and '966 patents since it is directed towards providing users with improved music listening experience and time-synchronized delivery of media content.¹⁰¹⁸

560. In terms of economic comparability, the 2011 Outland Research – Google Agreement represents a real-world, arms-length transaction for patents that cover similar functionality to the '885 and '966 patents.

561. Outland Research is an entity owned by inventor Louis B. Rosenberg with a wide range of inventions.¹⁰¹⁹ According to Mr. Malackowski, Outland Research is a non-practicing entity, and he seems to indicate that this is automatically discrediting.¹⁰²⁰ But there is more to consider than what Mr. Malackowski did, and it is not reasonable for Mr. Malackowski to take

¹⁰¹³ Interview of Dr. Schonfeld.

¹⁰¹⁴ Interview of Dr. Schonfeld.

¹⁰¹⁵ Interview of Dr. Schonfeld.

¹⁰¹⁶ Interview of Dr. Schonfeld.

¹⁰¹⁷ Interview of Dr. Schonfeld.

¹⁰¹⁸ Interview of Dr. Schonfeld.

¹⁰¹⁹ "SEO By The Sea," (accessed: <https://www.seobythesea.com/2011/09/google-picks-up-hardware-and-media-patents-from-outland-research/>).

¹⁰²⁰ Malackowski Supplemental Report, p. 62.

the position that agreements involving non-practicing entities cannot be used in negotiations involving patent practicing entities. The hypothetical license(s) include only patent rights, as did Google's agreement with Outland Research. In the end, Google obtained the comparable patent rights, and freedom to operate under these patents, among other patent rights, for a price that is readily observed. Mr. Malackowski also disregarded that Sonos itself did not add the "zone scene" functionality in its products until June 2020, although Sonos claims to have invented "zone scene" and "overlapping groups" in 2006.¹⁰²¹

562. Mr. Malackowski claimed that "owning a patent requires more obligation, and most patents purchased in patent purchases are not of significant value."¹⁰²² Mr. Malackowski disregards that most patent licensed are also not of significant value, so this is not a reason to dismiss a purchase. According to Mr. Malackowski, these additional "obligations" included maintenance-related costs.¹⁰²³ Mr. Malackowski has not shown that such costs are material here relative to the \$2.25 million purchase price, or otherwise materially affected the purchase price. Also, regarding his claim that most patent purchases are not of significant value, it is unclear if Mr. Malackowski believes that \$2.25 million is insignificant. If he is making such a claim, I disagree.

563. Mr. Malackowski also claimed that the dynamics of purchases "often lead[] to lump sum prices."¹⁰²⁴ Here, Mr. Malackowski minimized his inherent concession that companies may sell patent rights and retain an interest in any royalties collected, including running royalties. Mr. Malackowski also did not consider the possibility of patent sales that include contingent running royalty payments when the purchaser utilizes the technology. It would not be accurate for Mr. Malackowski to suggest that patent purchases only are done as lump sum payments, which is apparently why Mr. Malackowski only observed that this may "often" be true.

564. Licenses and patent ownership provide the right, but not obligation, to use a particular patent right over a period of time. Often, there is no royalty base, as the royalty reflects the operating

¹⁰²¹ Interview of Dr. Schonfeld; Malackowski Supplemental Report, p. 30; Almeroth Report, p. 329; '885 patent; '966 patent. As I discussed at length above, Mr. Malackowski identifies no significant demand specific to the '885 and '966 patents, or any evidence that such technology provided a competitive benefit to Sonos.

¹⁰²² Malackowski Supplemental Report, p. 62.

¹⁰²³ Deposition of James Malackowski, August 26, 2022, p. 170.

¹⁰²⁴ Malackowski Supplemental Report, p. 62.

freedom that is provided under the license in this way. Thus, from a financial perspective, payments can be adjusted to consider differences in timeframes based on the temporal scopes of the licenses/ownership (*see* **Exhibit 5.0**).

565. The term of the agreement can also be compared to the hypothetical license(s). In analyzing the length of the 2011 Outland Research – Google Agreement, I used the date of the agreement as the starting point (*i.e.*, July 29, 2011). For the ending date, I used the expiration date of January 19, 2027, which is the first to expire of the comparable U.S. patents (*i.e.*, the ‘414 patent). This is reasonable because the 2011 Outland Research – Google Agreement included other rights as well as future patent rights, which would extend the life of the agreement beyond the expiration date of the ‘414 patent. The 2011 Outland Research – Google Agreement provided Google approximately 15.5 years of operating freedom (*see* **Exhibit 5.0**). Assuming a 15.5-year term yields an annual amount of approximately \$145,000 per year (*see* **Exhibit 5.0**).
566. The 15.5 years of operating freedom granted under the 2011 Outland Research – Google Agreement is longer than the hypothetical license to the ‘885 patent. The hypothetical license period from November 2020 to September 2027 for the ‘885 patent, yields a total of 6.8 years (*see* **Exhibit 5.0**). These periods of time overlap. And scaling the \$2.25 million amount for differences in these timeframes yields a lump-sum amount of approximately \$987,000 applicable through expiration of the ‘885 patent (*see* **Exhibit 5.0**).¹⁰²⁵
567. Similarly, the 15.5 years of operating freedom granted under the 2011 Outland Research – Google Agreement is longer than and overlaps with the hypothetical license to the ‘966 patent. The hypothetical license period from November 2020 to September 2027 for the ‘966 patent, yields a total of 7.9 years (*see* **Exhibit 5.2**). Scaling the \$2.25 million amount for differences in these timeframes yields a lump-sum amount of approximately \$1.1 million applicable through expiration of the ‘966 patent (*see* **Exhibit 5.2**).¹⁰²⁶

¹⁰²⁵ When scaled for the damages timeframe, this translates to approximately \$261,300 (*see* **Exhibit 5.1**).

¹⁰²⁶ When scaled for the damages timeframe, this translates to approximately \$435,500 (*see* **Exhibit 5.3**).

568. Mr. Malackowski presumed I believe that “that the only adjustment that needs to be performed to make this agreement comparable to the license that would be granted under the hypothetical negotiation is timing related.”¹⁰²⁷ More specifically, Mr. Malackowski claimed that I “did not quantitatively compare the value and benefits of the patents transferred in this license to the Asserted Patents in this case.”¹⁰²⁸ It is unclear how Mr. Malackowski could make such a claim prior to seeing my report.
569. As I explained above, I understand from Dr. Schonfeld that the Outland Research agreement included four patents that are technologically comparable to the ‘885 and ‘966 patents.¹⁰²⁹ I understand from Dr. Schonfeld that there is no reason to believe that this comparison requires any adjustment in terms of technological importance or claimed scope.¹⁰³⁰ I understand from Dr. Schonfeld that, at least the patents in the Outland Research agreement (i.e., ‘414 patent, the ‘117 patent, the ‘816 patent and the ‘694 patent) are more essential than the ‘885 and ‘966 patents because collaborative music experience, for example, has a wider potential impact than the particular way of implementing the overlapping speaker functionality claimed in the ‘885 and ‘966 patents.¹⁰³¹
570. To briefly recap, each of the reasons Mr. Malackowski uses to dismiss this agreement has issues. There is thus no basis for him to conclude that the Outland agreement is not indicative of the form and amount of the license(s) that would be granted in the hypothetical negotiation(s).¹⁰³²

Mr. Malackowski Mistreated The 2016 [REDACTED] - Google Agreement

571. Mr. Malackowski claimed that the [REDACTED] agreement is not comparable to the hypothetical license(s) since it is a purchase agreement.¹⁰³³ As I explained above, Mr. Malackowski’s dismissal of any purchase, just because it is a purchase rather than a non-exclusive license, is

¹⁰²⁷ Malackowski Supplemental Report, p. 62.

¹⁰²⁸ Malackowski Supplemental Report, p. 62.

¹⁰²⁹ Interview of Dr. Schonfeld; Deposition of Dr. Schonfeld, August 31, 2022, pp. 145-147.

¹⁰³⁰ Interview of Dr. Schonfeld.

¹⁰³¹ Interview of Dr. Schonfeld.

¹⁰³² Malackowski Supplemental Report, p. 62.

¹⁰³³ Malackowski Supplemental Report, pp. 63-64.

Sonos to Google (or were prevented from going to Sonos) due to the '033 patent. Also, in the end, Google obtained the comparable patent rights for a price that is readily observed, was accepted by a third party, as well as involved a comparable period of time and scope. In this regard, the [REDACTED] agreement (as well as the Outland Research agreement) provide a better benchmark than the apps and other proxies utilized by Mr. Malackowski. I discuss this further in **Section 7.5**, below.

Mr. Malackowski And The 2017 [REDACTED] - Google Agreement

585. Effective September 8, 2017, Google and [REDACTED] entered into a Patent Purchase Agreement (the "2017 [REDACTED] - Google Agreement").¹⁰⁵¹ I accept Mr. Malackowski's position that this agreement does not provide an amount that would inform the hypothetical negotiation(s).¹⁰⁵²

7.5 '033 Patent: Mr. Malackowski's "Alternative" Theory (Third-Party Casting Apps) Is Flawed And Unreliable

586. Immediately after dismissing every single actual, patent-specific transaction, Mr. Malackowski described how he relied on apps as benchmarks.¹⁰⁵³ As I will explain below, the apps that Mr. Malackowski considered as applicable are not patent transactions, and unlike the hypothetical licenses(s); the patent acquisitions discussed above at least are relatively specific to comparable patent rights.

587. Mr. Malackowski said that rejected the patent acquisitions, claiming that Google received a number of deliverables, including boiler plate licensing documents such as "Non-U.S. Enforcement Activities, Patent Office Proceedings, Assignment of Patent Rights, Patent Marking, Merger or Change Name Documents, Security Agreements, and Wire Transfer Information, rather than receiving a bare patent license."¹⁰⁵⁴ Again, these are documents that relate to ownership of patent rights. If Mr. Malackowski believes such perfunctory information

¹⁰⁵¹ GOOG-SONOSNDCA-00055178-202. [REDACTED] agreed to sell patent rights for a one-time, lump-sum of \$100,000. GOOG-SONOSNDCA-00055178-202, at 180.

¹⁰⁵² Mr. Malackowski claims that "Mr. Bakewell failed to compare this agreement to the current Asserted Patents in this case." Malackowski Supplemental Report, p. 65. Mr. Malackowski has no basis for this opinion.

¹⁰⁵³ Malackowski Supplemental Report, pp. 53-54, 66.

¹⁰⁵⁴ Malackowski Supplemental Report, pp. 61-63.

646. Without specifying the impact, Mr. Malackowski stated that this G-P Factor would favor the licensor.¹¹³⁶ According to Mr. Malackowski, “Sonos’s activism in identifying infringing use in the market demonstrates that Sonos wishes to keep its patent monopoly.”¹¹³⁷ But Sonos has entered into licenses for its patent rights. Mr. Malackowski’s claim about this G-P Factor “favoring the licensor” because “Sonos wishes to keep its patent monopoly” is also inconsistent with Mr. Malackowski’s own observation that “Sonos has sent Google its IP Licensing Model with the goal to ‘obtain a royalty rate...’”¹¹³⁸

G-P Factor 5: Commercial Relationship Between The Licensor And The Licensee¹¹³⁹

647. G-P Factor 5 relates to the commercial relationship between the licensor and the licensee. Holding all else equal, licenses between competitors contain royalties that are significantly higher than those between non-competitors. This is because a reasonable company would have no interest in permitting a competitor to benefit from practicing its intellectual property rights without compensating the company for their incremental value. This is particularly so when a company decides to “lay open” an invention via the U.S. patent system in exchange for the statutory rights provided under a U.S. patent.

648. Mr. Malackowski provided citations to documents where Google and Sonos mention one another.¹¹⁴⁰ As I discussed above, including in **Section 2.5**, while Google and Sonos may compete in some respects, it should be kept in context, particularly as it relates to the patents-in-suit. The companies have different products and strategies, and they focus on different consumer segments. In some respects, there is some competition, but there are other complementary aspects of the product offerings, and Sonos does not practice the ‘033 patent, which makes the relationship more analogous to a complementary, inventor-promoter type of relationship. I explain this further below.

¹¹³⁶ Malackowski Supplemental Report, p. 94.

¹¹³⁷ Malackowski Supplemental Report, p. 94.

¹¹³⁸ Malackowski Supplemental Report, p. 96.

¹¹³⁹ G-P Factor 5 reads: “The commercial relationship between the licensor and licensee, such as, whether they are competitors in the same territory in the same line of business; or whether they are inventor and promotor.” *Georgia Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *aff’d as modified*, 446 F.2d 295 (2d Cir. 1971).

¹¹⁴⁰ Malackowski Supplemental Report, pp. 97 -102.

649. According to Mr. Malackowski, G-P Factor 5 favors Sonos.¹¹⁴¹ According to Mr. Malackowski, “licenses to competitors generally contain a higher royalty rate to compensate for the risk of potential lost sales and/or market share; whereas licenses to entities with an inventor/promoter relationship generally contain lower royalty rates to account for the promoter being able to distribute the product to customers that the inventor would not typically be able to reach.”¹¹⁴² Mr. Malackowski’s claims regarding competition, as well as his discussion under this G-P Factor, are incomplete, overstate the amount of competition between the parties and apparently contribute towards his overstated royalty estimates.
650. Mr. Malackowski identified no evidence that any customers shifted from Sonos to Google (or were prevented from going to Sonos) due to any of the patents-in-suit. Mr. Malackowski’s strict, uncompromising opinion that the parties would have been competitors at the time of the hypothetical negotiation(s) lacks basis, as does his claim that this consideration favors the licensor.¹¹⁴³
651. As Mr. Malackowski admitted, Sonos does not practice the ‘033 patent and does not have competitive counterparts to Google’s Pixel smartphones, laptops, or tablets.¹¹⁴⁴ Similarly, Sonos did not have a counterpart to Google’s streaming music service at the time of the hypothetical negotiation for the ‘033 patent.¹¹⁴⁵
652. Mr. Malackowski also admitted that Sonos “do[es] not specifically offer a computer device that can serve as a controller for the Sonos system, such as a smartphone.”¹¹⁴⁶ Both the ‘033 and ‘966 patents are from the perspective of a controller device.¹¹⁴⁷ Significant portion of Mr.

¹¹⁴¹ Malackowski Supplemental Report, pp. 97 -102.

¹¹⁴² Malackowski Supplemental Report, p. 97.

¹¹⁴³ Malackowski Supplemental Report, p. 102.

¹¹⁴⁴ Malackowski Supplemental Report, p. 30.

¹¹⁴⁵ Malackowski Supplemental Report, pp. 30-32.

¹¹⁴⁶ Malackowski Supplemental Report, p. 30.

¹¹⁴⁷ Interview of Dr. Bhattacharjee; Interview of Dr. Schonfeld.

Malackowski's royalty damages derive from these two patents;¹¹⁴⁸ this further contradicts Mr. Malackowski's conclusion that that G-P Factor 5 would favor the licensor.¹¹⁴⁹

653. For the '885 and '966 patents, Mr. Malackowski claimed that Sonos and Google compete. However, Mr. Malackowski has not shown that Sonos used the '885 or the '966 patent to gain any competitive advantage or evidence that the accused functionality was a differentiating feature.¹¹⁵⁰ Mr. Malackowski further acknowledged that "Sonos did not have the ability to create a zone scene either through a controller or a speaker" before the release of the S2 app in May 2020.¹¹⁵¹ Thus, to the extent that this functionality had any significant competitive impact at any point, there was no competition until that time. Mr. Malackowski also conceded that he could not identify lost profits associated with the '885 or '966 patent.¹¹⁵²
654. Sonos does not make smartphones (*e.g.*, Google Pixel), smart displays (*e.g.*, Nest Hub), smart mesh router systems (*e.g.*, Nest Wifi Point), or smart dongles (*e.g.*, Chromecast).¹¹⁵³ At the time of the hypothetical negotiation(s), Sonos did not have a presence or develop VPAs for smart devices.¹¹⁵⁴ The companies' strategies and track records with VPAs are different, as I discussed above. And the evidence shows that Sonos's and Google's products are generally different, as illustrated in the following graphic:

¹¹⁴⁸ Calculated as: (i) $[(\$214,505,864 + \$144,373,860) / (\$214,505,864 + \$144,373,860 + \$12,246,294)] = 96.7\%$; and (ii) $[(\$278,067,990 + \$144,373,860) / (\$278,067,990 + \$144,373,860 + \$12,246,294)] = 97.2\%$.

See Malackowski Supplemental Report, pp. 8-10.

¹¹⁴⁹ Mr. Malackowski noted that "any S2-compatible device would be able to practice the claims of the... '966 Patent." Sonos does not manufacture or sell computing devices on which a user would access the S2 app. To the extent Mr. Malackowski claims that the S2 app itself practices the claims, which I understand from Dr. Schonfeld is not the case, then Mr. Malackowski has not shown that the S2 app and the Google Home app are competing products. The evidence does not support this position. The Google Home app is used for myriad purposes, as discussed in Section 5.3, and usage of multi-zone grouping is minimal (*see* Exhibit 4.3 and Exhibit 4.4). Malackowski Supplemental Report, pp. 30 and 102.

¹¹⁵⁰ Malackowski Supplemental Report, pp. 56-57.

¹¹⁵¹ Malackowski Supplemental Report, pp. 30 and 37.

¹¹⁵² Malackowski Supplemental Report, pp. 56-57.

¹¹⁵³ "Products," Sonos website (accessed: <https://www.sonos.com/en-us/shop>); "How Sonos Makes Money," Investopedia, July 15, 2021 (accessed: <https://www.investopedia.com/investing/how-does-sonos-make-money/>).

¹¹⁵⁴ "Sonos: Lost The Battle Before It Started," Seeking Alpha, March 21, 2019 (accessed: <https://seekingalpha.com/article/4250335-sonos-lost-battle-started>); "How Sonos Makes Money," Investopedia, July 15, 2021 (accessed: <https://www.investopedia.com/investing/how-does-sonos-make-money/>).

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Comparison of Sonos and Google Products¹¹⁵⁵

Sonos One, Sonos Play:5
and Sonos Five Speakers

Google accused Nest products, apps, smart speakers,
smart displays and Pixel smartphones

655. As shown in the foregoing graphic, their products differ, and Sonos does not have a competitive counterpart to Google smartphones, smart displays, smart dongles, and smart mesh router systems. There are also differences between the features and functionalities between Sonos and Google's products (*see* **Exhibit 14.0, Exhibit 14.1, Exhibit 14.2, Exhibit 14.3, Exhibit 14.4 and Exhibit 14.5**).

656. Chris Chan, Senior Product Manager at Google, testified that Sonos and Google are not direct competitors.¹¹⁵⁶ According to Mr. Chan, Sonos offers more dedicated home theater products, which cater to "premium" customers, while Google's speakers cater to "non-premium" space.¹¹⁵⁷

657. Even among smart speakers, in addition to the differences in form factors, Sonos and Google largely are in different market segments. Sonos focuses more on audiophiles and those most interested in high quality sound from their speakers than does Google.¹¹⁵⁸ According to a

¹¹⁵⁵ Malackowski Supplemental Report, pp. 30-32; Google Store (accessed: https://store.google.com/?&43700028976493334&gclid=EAlaIqobChMIgZfKht_l-AIVK__jBx3dzQc_EAAYASAAEgLRNPD_BwE&gclsrc=aw.ds&hl=en-US).

¹¹⁵⁶ Deposition of Chris Chan, November 29, 2022, pp. 96, 102-103.

¹¹⁵⁷ Deposition of Chris Chan, November 29, 2022, pp. 102, 116.

¹¹⁵⁸ Interview of Mr. Chan; SONOS-SVG2-00053537-574 at 545; SONOS-SVG2-00055769 at 806; "Sonos One Review: The Best Smart Speaker For Audiophiles," The Guardian, February 15, 2018 (accessed: www.theguardian.com/technology/2018/feb/15/sonos-one-review-best-smart-speaker-audiophiles-amazon-alexa); "How Smart-Speaker Maker Sonos Plans to Take on Apple, Google and Amazon," Variety.com, June

March 2021 interview of Sonos's CEO, Patrick Spence, Sonos "plays" in the "home premium segment."¹¹⁵⁹ Generally speaking, Google smart speakers are more mainstream and cater to price conscious customers.¹¹⁶⁰

658. As I explained above, Google target customers are not just in the speaker space; Google's customers often buy Google smart speakers for voice assistance technologies, as well as for many other features relating to the smart home.¹¹⁶¹ This is consistent with testimony of Mr. Chan, who testified that in his experience, "those that are more attracted to high-end audio prefer Sonos and those that are more interested in the intelligence of the Google Assistant in controlling their smart home prefer our smart speaker devices."¹¹⁶²
659. Mr. Chan also testified that Sonos smart speakers are offered at "different price points" and Sonos has a "different brand from when people think about smart speakers."¹¹⁶³ Mr. Chan also testified that Sonos's products are more premium than Google's accused Nest speaker products and that users do not view Google as having a brand capable of the premium audio that Sonos is capable of.¹¹⁶⁴
660. The Sonos speakers are also more expensive with fewer features than Google's speakers (see **Exhibit 14.1 and Exhibit 14.2**). For example, while the Sonos Five speaker sells for \$549, the Nest Hub Max is currently Google's most expensive smart device, and it sells for almost 70% less at only \$175.¹¹⁶⁵ However, this product is different than anything that Sonos offers.

20, 2018 (accessed: https://variety.com/2018/biz/features/sonos-apple-google-amazon-1202850159/?sub_action=logged_in).

¹¹⁵⁹ "Sonos CEO On Tech Competition: We're The Story Of Software Eating Audio," Yahoo Finance, March 10, 2021 (<https://www.yahoo.com/video/sonos-ceo-tech-competition-story-175816392.html>).

¹¹⁶⁰ Interview of Mr. Chan.

¹¹⁶¹ GOOG-SONOSNDCA-00056235-241, at 235; GOOG-SONOSNDCA-00056580-600, at 586, 594; GOOG-SONOSNDCA-00058647-666 at 653; GOOG-SONOSNDCA-00056673-721, at 681; GOOG-SONOSNDCA-00056500-572, at 505; "Review: Google Home Is A Win (And Better Than The Amazon Echo)," Yahoo Finance, November 3, 2016 (accessed: <https://finance.yahoo.com/news/review-google-home-win-better-130033351.html>); "Google Home brings Google's Smarts To Your Living Room," TechCrunch, November 3, 2016 (accessed: <https://techcrunch.com/2016/11/03/google-home-review/>).

¹¹⁶² Deposition of Chris Chan, November 29, 2022, p. 97.

¹¹⁶³ Deposition of Chris Chan, November 29, 2022, pp. 100-101, 108.

¹¹⁶⁴ Deposition of Chris Chan, November 29, 2022, p. 115.

¹¹⁶⁵ "Five," Sonos website (accessed: www.sonos.com/en-us/shop/five); "Compare Smart Speakers And Displays," Google Store (accessed: https://store.google.com/us/magazine/compare_nest_speakers_displays?hl=en-US); "Nest Hub Max Smart

Sonos's Adam Graham, Senior Manager of the Release Management Team, who indicated that there was a "good working relationship" between the parties.¹¹⁸⁴ From Mr. Graham's perspective, Sonos saw potential in Google as a partner.¹¹⁸⁵ In particular, Mr. Graham recalled that Google Play Music was an "exciting product," that "streaming music was really taking off" during their collaboration, and that "multi music was important."¹¹⁸⁶

669. Keith Corbin, Director of Product Management, Partnerships and Integrations at Sonos, also recalled Google's designation as a "Tier 1 Partner," a status determined based upon a combination of factors, including: (i) the number of households that were using that product, (ii) their market reach, and (iii) visibility.¹¹⁸⁷ Mr. Corbin also testified regarding the advantages for Sonos in integrating with Google Play Music. For example, "Google Play Music was the default music player on Android phones and Android phones were quickly becoming the most common device in the world, and so there was a strong belief that Google Play Music could be an important streaming service at that point in time."¹¹⁸⁸

670. Debajit Ghosh, Senior Director of Engineering, testified that "we had internal users who were interested in playing (Google) Play Music on their Sonos speakers. And Sonos was excited about the playback experience between (Google) Play Music and Chromecast."¹¹⁸⁹ Mr. Ghosh also testified that Sonos wanted Google "to collaborate in building a similar playback experience between (Google) Play Music and Sonos speakers."¹¹⁹⁰

671. As discussed at length above, Mr. Malackowski did not demonstrate that the patents-in-suit provide functionality that drives significant demand, either in terms of increased units or increased revenues. The patents-in-suit relate to relatively specific functionality, and it does not appear that these technologies are those that drive changes in market share. While there may be disputes over the companies' overall relationship, and over other patent rights, a license

GOOG-SONOSWDTX-0005382-824; SONOS-SVG2-00181873-876; SONOS-SVG2-00181873-876 at 873-874; SONOS-SVG2-00072437-438.

¹¹⁸⁴ Deposition of Adam Graham, May 13, 2022, pp. 66-67.

¹¹⁸⁵ Deposition of Adam Graham, May 13, 2022, pp. 68-69.

¹¹⁸⁶ Deposition of Adam Graham, May 13, 2022, pp. 69-70.

¹¹⁸⁷ Deposition of Keith Corbin, June 1, 2022, pp. 170-171.

¹¹⁸⁸ Deposition of Keith Corbin, June 1, 2022, p. 171.

¹¹⁸⁹ Deposition of Debajit Ghosh, May 20, 2022, p. 86.

¹¹⁹⁰ Deposition of Debajit Ghosh, May 20, 2022, p. 86.

to these three patents-in-suit for a reasonable royalty appears to be often and generally mutually beneficial, as it increases Sonos's revenues, and provides Google a license to provide the specific accused functionality.

***G-P Factor 6: Convoyed, "Tag-Along," And Collateral Sales*¹¹⁹¹**

672. G-P Factor 6 relates to the effect the patented invention might have on the sales of non-patented items. The sale of products embodying a patented technology can enhance the sales of related goods or services. The existence of such a benefit—also referred to generally as convoyed, collateral or “tag-along” sales—can increase the value of the patent rights conveyed in a license.
673. I understand that in order for unpatented components to be included in the royalty base, it must be shown that (i) the patented feature provides the basis for consumer demand for the accused product and (ii) the patented and unpatented components of the accused product function together in a manner so as to produce the desired end product or result.¹¹⁹² In other words, there must be an economic nexus between the asserted patent(s) and any “tag along” or collateral sales.
674. Mr. Malackowski claimed that “(o)nce a user or household purchases a Google hardware device, Google generates a great deal more revenue from that user or household.”¹¹⁹³ For example, Mr. Malackowski implies that Google's infringement will generate revenue through

¹¹⁹¹ G-P Factor 6 reads: The effect of selling the patented specialty in promoting sales of other products of the licensee; that existing value of the invention to licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales. *Georgia Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *aff'd as modified*, 446 F.2d 295 (2d Cir. 1971).

¹¹⁹² See, e.g., *Cornell*, 609 F. Supp. 2d 279, at 286. In *Cornell*, the Court decided: “The entire market value rule in the context of royalties requires adequate proof of three conditions: (1) the infringing components must be the basis for customer demand for the entire machine including the parts beyond the claimed invention . . . (2) the individual infringing and non-infringing components must be sold together so that they constitute a functional unit or are parts of a complete machine or single assembly of parts . . . and (3) the individual infringing and non-infringing components must be analogous to a single functioning unit . . . It is not enough that the infringing and non-infringing parts are sold together for mere business advantage. . . . Notably, these requirements are additive, not alternative ways to demonstrate eligibility for application of the entire market value rule.”

¹¹⁹³ Malackowski Supplemental Report, p. 103.

757. G-P Factor 13 has a downward impact relative to the baseline(s).

G-P Factor 14: Opinion Of Qualified Experts¹³¹⁶

758. G-P Factor 14 relates to the opinions of other experts. My opinions and the information that I considered are contained in this report and its exhibits, including the opinions of other experts. I intend to offer expert testimony consistent with my work, analyses, and/or findings as described herein.

759. I intend to review additional evidence in this matter should it become available. I reserve the ability to revise, extend, and/or supplement my analyses and conclusions to the extent this information may become available.

G-P Factor 15: Outcome Of The Hypothetical Negotiation(s)¹³¹⁷

760. My reasonable royalty framework involves the three widely accepted methods for intellectual property valuation (*i.e.*, the cost approach, the income approach, and the market approach), including the G-P Factors. The parties to the hypothetical negotiation(s) would seek to identify and analyze evidence that is specific to the incremental value of the patents-in-suit.

761. Based upon the totality of the information presented throughout this report, I considered the factors that would have affected the outcome of the hypothetical negotiation(s). The parties would enter the hypothetical negotiation(s) with the following perspectives:

Hypothetical Licensor (Sonos)	Hypothetical Licensee (Google)
<ul style="list-style-type: none"> • Would be willing to license out the patents-in-suit on reasonable terms. 	<ul style="list-style-type: none"> • Willing to license in the patents-in-suit on reasonable terms.

¹³¹⁶ G-P Factor 14 reads: "The opinion testimony of qualified experts." *Georgia Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *aff'd as modified*, 446 F.2d 295 (2d Cir. 1971).

¹³¹⁷ G-P Factor 15 reads: "The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement; that is, the amount which a prudent licensee—who desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention—would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a license." *Georgia Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *aff'd as modified*, 446 F.2d 295 (2d Cir. 1971).

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Hypothetical Licensor**(Sonos)**

- Would know that Defendant offered products which infringed its valid patent rights (without this consideration, there would be no damages).

- Would recognize the limited scope of the patents-in-suit relative to Defendant's accused products and business overall.

- Could not demonstrate a measurable nexus between the patents-in-suit and any incremental revenue or unit sale or prices.

- Did not commercialize products that practice the '033 patent.

Hypothetical Licensee**(Google)**

- Would understand that the patents-in-suit do not drive demand for the accused products in any significant way. The commercial success of the accused products is due to many other features, so even if the patents-in-suit are assumed to provide value, that must be kept in context.

- Commercially acceptable non-infringing alternatives to the patents-in-suit available. Defendant is in the midst of a design change for the '033, '885 and '966 patents.

- Would know there are myriads of features and technologies, unrelated to the patents-in-suit, in the accused products.

- Would understand that the claims of the patents-in-suit do not provide the basis for customer demand, and there is relatively limited usage.

- The concept of operating freedom would be a front-of-mind consideration, but a license to the patents-in-suit would provide no assurance of "patent peace."

762. Overall, the financial and economic evidence shows that the incremental value of the patents-in-suit is limited. The hypothetical negotiation(s) would have involved non-exclusive, one-way, U.S.-only, bare license to the patents-in-suit. I also assume that the parties would enter the hypothetical negotiation(s) assuming the patents-in-suit are valid, enforceable, and infringed.

763. The G-P Factors reconcile and refine the data points derived from the foregoing analyses.¹³¹⁸ The G-P Factors demonstrate that the baseline(s) are reasonable. That so many of the G-P

¹³¹⁸ The hypothetical negotiation construct involves two willing and reasonable parties. In this type of negotiation, both parties would evaluate the evidence and seek to reach an outcome that is mutually beneficial. This is not unusual and in fact is encouraged by many as negotiation strategy (*see*, for example, "Using Principled Negotiation to Resolve Disagreements," April 5, 2021, Harvard University Program on Negotiation (accessed: <https://www.pon.harvard.edu/daily/dispute-resolution/principled-negotiation-resolve-disagreements/>) and Fisher, Roger, William L. Ury, and Bruce Patton, *Getting to Yes: Negotiating Agreement Without Giving In*, Penguin Books, 2011). Reviewing available evidence in an iterative fashion, and seeking to reconcile and refine the available data, is similarly encouraged in valuation literature. *See* Hitchner, James R., and Michael J. Mard. *Financial Valuation Workbook: Step-By-Step Exercises and Tests to Help You Master Financial Valuation*, John Wiley & Sons, Incorporated, 2017, p. 120.

Factors are neutral relative to the baseline(s) demonstrates that the baseline(s) provide a good fit for the facts of this case.

764. From a practical point of view, the economic considerations of the hypothetical negotiations would involve the parties negotiating a royalty that is commensurate with the incremental value of the patents-in-suit. This represents the consideration at which rights under the patents-in-suit would be licensed, with neither party being under any compulsion, and both parties having reasonable knowledge of relevant facts. This is consistent with a determination of a reasonable royalty under the hypothetical negotiation framework, as described in *Georgia-Pacific*.¹³¹⁹ While this reasonable royalty determination is a function of data points reflecting the incremental value of the patents-in-suit, they can also be viewed as the most likely outcome of the hypothetical negotiation(s) between two reasonable parties for non-exclusive rights under the patents-in-suit.
765. The parties at the hypothetical negotiation(s) would focus on measures specific to the incremental value of the patents-in-suit. Here, the cost approach shows there were several commercially acceptable, non-infringing alternatives to the patents-in-suit at the time of the hypothetical negotiation(s). The income approach demonstrates that the patents-in-suit do not drive demand in a significant way and there is relatively limited usage attributable to the patents-in-suit. This supports the commercial feasibility of the non-infringing alternatives.
766. Mr. Malackowski and I appear to agree that commercially acceptable, non-infringing alternatives can affect a reasonable royalty, although we disagree on their applicability in this case.¹³²⁰ As discussed in **Section 6**, Google is implementing product changes that result in

¹³¹⁹ G-P Factor 15 reads: The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement; that is, the amount which a prudent licensee—who desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention—would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a license.

¹³²⁰ According to Mr. Malackowski, “long-term, non-exclusive licenses tend to have lower rates so as not to incentivize the licensee to design around the patented technology, implement an alternative technology or otherwise discontinue sales of a licensed product. Conversely, short-term, non-exclusive licenses tend to have higher rates.” Here, Mr. Malackowski admitted to the potential for potential of commercially acceptable, non-infringing alternatives affecting the royalties. The better way to evaluate the economic impact of this is to

commercially acceptable, non-infringing alternatives. One involves a commercially acceptable alternative to the '033 patent that I understand Google has implemented in its products.¹³²¹ Google is also implementing a what I understand to be a commercially acceptable alternative for the '885 and '966 patents.¹³²² I understand that the cost to implement non-infringing alternatives total less than \$2.6 million for the '033 patent, less than \$200,000 for the '885 patent and less than \$200,000 for the '966 patent. I further understand that the non-infringing alternatives for the '885 and '966 patents would relate to both patents, and are not additive (*see also Exhibit 2.0*).

767. To the extent Mr. Malackowski's theories are considered by the trier-of-fact, basic adjustments should be made which would reduce his estimates to no more than \$5.4 million for the '033 patent, no more than \$1.2 million for the '885 patent, and no more than \$7.4 million for the '966 patent (*see Exhibit 1.0*). However, there are other measures showing amounts of no more than \$1.2 million for the '885 patent, based on adjustments to Mr. Malackowski's estimates, as summarized below:

**Mr. Malackowski's Royalty Estimates Based on
Adjustment To Usage Data
'885 Patent
11/24/20 to 09/30/22**

	<u>Adjusted Usage Metric</u>	<u>Mr. Malackowski's Adjusted Estimates</u>
Daily activations (4 commands)	0.05%	No more than \$100,000 ¹³²³
Daily active users (1 or 4 commands)	0.554%	No more than \$300,000 ¹³²⁴
Monthly active users (1 or 4 commands)	2.752%	No more than \$1.2 million ¹³²⁵

768. Similarly, there are measures that show amounts no more than \$7.4 million for the '966 patent,

evaluate the commercially acceptable, non-infringing alternatives themselves, and account for the impact directly. Malackowski Supplemental Report, p. 106.

¹³²¹ Interview of Mr. Jurczyk; Interview of Dr. Bhattacharjee; Bhattacharjee Opening Report, Section XIV, pp. 316-318.

¹³²² Interview of Mr. Mackay; Interview of Dr. Schonfeld; Schonfeld Opening Report, Section XIII, pp. 679-686.

¹³²³ Calculated as: $(\$1,164,217 / 2.752\% \times 0.05\% = \text{no more than } \$100,000)$. *See Exhibit 4.3*.

¹³²⁴ Calculated as: $(\$1,164,217 / 2.752\% \times 0.554\% = \text{no more than } \$300,000)$. *See Exhibit 4.4*.

¹³²⁵ *See Exhibit 4.0*.

as summarize in the following table:

**Mr. Malackowski's Royalty Estimates Based on
Adjustment To Usage Data And Overstatement Of Royalty Base
'966 Patent
11/05/19 to 11/15/22**

	<u>Adjusted Usage Metric</u>	<u>Adjustment To Royalty Base</u>	<u>Mr. Malackowski's Adjusted Estimates</u>
Daily activations (4 commands)	0.05%	46.3%	No more than \$200,000 ¹³²⁶
Daily active users (1 or 4 commands)	0.554%	46.3%	No more than \$1.5 million ¹³²⁷
Monthly active users (1 or 4 commands)	2.752%	46.3%	No more than \$7.4 million ¹³²⁸

769. These adjustments yield conclusions that are significantly lower than what Mr. Malackowski sets forth. That said, as I explained throughout this report, each of Mr. Malackowski's theories and associated calculations is flawed and unreliable. These other measures further underscore that at no point did Mr. Malackowski identify measures of value specific to the patents-in-suit, and his theories lack consideration of demand and usage.

770. In addition, as I explained, IFTTT is a poor starting point, and if anything overstates value.

771. I further note that Mr. Malackowski's measures are not additive to the non-infringing alternatives, and together with Google's willingness to change, instead show that such changes would have been (and are) commercially acceptable as there is not significant demand for the

¹³²⁶ Adjusting Mr. Malackowski's royalty estimate for overstatement of royalty base: (176.2 million x 46.3% = 94.7 million installs). See **Exhibit 4.13**. Adjusting Mr. Malackowski's royalty rate for usage based on 0.05% instead of 29% "apportionment metric" that Mr. Malackowski used would result in a reduction in his royalty rate from \$0.82 per install to \$0.0014 per install. See **Exhibit 4.14**. Accordingly, adjusting Mr. Malackowski's royalty base and royalty rate for these issues would result in a reduction in his royalty estimate from \$144.4 million to no more than \$200,000. This is calculated as: (94.7 million installs x \$0.0014 per install = no more than \$200,000).

¹³²⁷ Adjusting Mr. Malackowski's royalty estimate for overstatement of royalty base: (176.2 million x 46.3% = 94.7 million installs). See **Exhibit 4.13**. Adjusting Mr. Malackowski's royalty rate for usage based on 0.554% instead of 29% "apportionment metric" that Mr. Malackowski used would result in a reduction in his royalty rate from \$0.82 per install to \$0.0157 per install. See **Exhibit 4.15**. Accordingly, adjusting Mr. Malackowski's royalty base and royalty rate for these issues would result in a reduction in his royalty estimate from \$144.4 million to no more than \$1.5 million. This is calculated as: (94.7 million installs x \$0.0157 per install = no more than \$1.5 million).

¹³²⁸ See **Exhibit 4.0**.

technology of the “zone scene” patents. The adjustments to Mr. Malackowski’s theories substantiate the lack of demand and commercial acceptability of the non-infringing alternatives, consistent with other information described above.

772. Mr. Malackowski dismissed Google’s patent purchase agreements, claiming they are “not economically comparable to the license that would result from the hypothetical negotiation in this case...”¹³²⁹ As I discussed in **Section 7.4**, Mr. Malackowski’s reasons for dismissing these patent purchase agreements are invalid and discredit his theories using a revenue-based running royalty model. The apps relied upon by Mr. Malackowski are not specific to any patent rights, and Mr. Malackowski identified no patented technology in them.¹³³⁰ As I discussed above, Mr. Malackowski rejected a July 2011 agreement where Google agreed to pay Outland Research a one-time, lump-sum amount of \$2.25 million to acquire what I understand to be comparable patent rights to the ‘885 and ‘966 patents.¹³³¹ Mr. Malackowski also rejected a February 2016 agreement between Google and ██████ where, for a one-time, lump-sum amount of \$250,000, Google acquired what I understand to be comparable patent rights to the ‘033 patent.¹³³² These acquisitions further demonstrate the lack of reasonableness of Mr. Malackowski’s conclusions, as well as the applicable form of the royalties being a lump sum rather than a running royalty.¹³³³

773. Sonos describes that it is a leading company in terms of granted U.S. patents, having more than 940, including the patents-in-suit, with hundreds more patents in other countries.¹³³⁴ Sonos

¹³²⁹ See Malackowski Supplemental Report, pp. 58-66.

¹³³⁰ In fact, Mr. Malackowski stated that “like the prior art, these apps do not perform each and every limitation of the independent Asserted Claims of the ‘033 Patent.” Malackowski Supplemental Report, pp. 66-68. Mr. Malackowski also cited to Dr. Schmidt’s report that “these apps operate in a similar fashion to the prior art that Google has asserted against the ‘033 patent.” Malackowski Supplemental Report, p. 68, citing Opening Schmidt Report, pp. 165 – 166. Thus, these apps, even according to Mr. Malackowski’s, relate to prior art and not to the ‘033 patent. Georgia-Pacific Factor 9 discusses that the prior art should be separated out in a reasonable royalty determination. I further understand from Dr. Bhattacharjee that these are not good benchmarks for the ‘033 patent. Interview of Dr. Bhattacharjee.

¹³³¹ Interview of Dr. Schonfeld.

¹³³² Interview of Dr. Bhattacharjee.

¹³³³ As I explained, if Google could implement commercially acceptable NIAs, Sonos would reasonably know this and would reasonable accept a lump sum payment rather than a running royalty. Google would also reasonably pay no more than the overall cost to implement.

¹³³⁴ Malackowski Supplemental Report, p. 13, citing Sonos, Inc.’s Third Amended Complaint, *Sonos, Inc., v. Google, LLC*, 3:21-c-07559, March 30, 2022, p. 2.